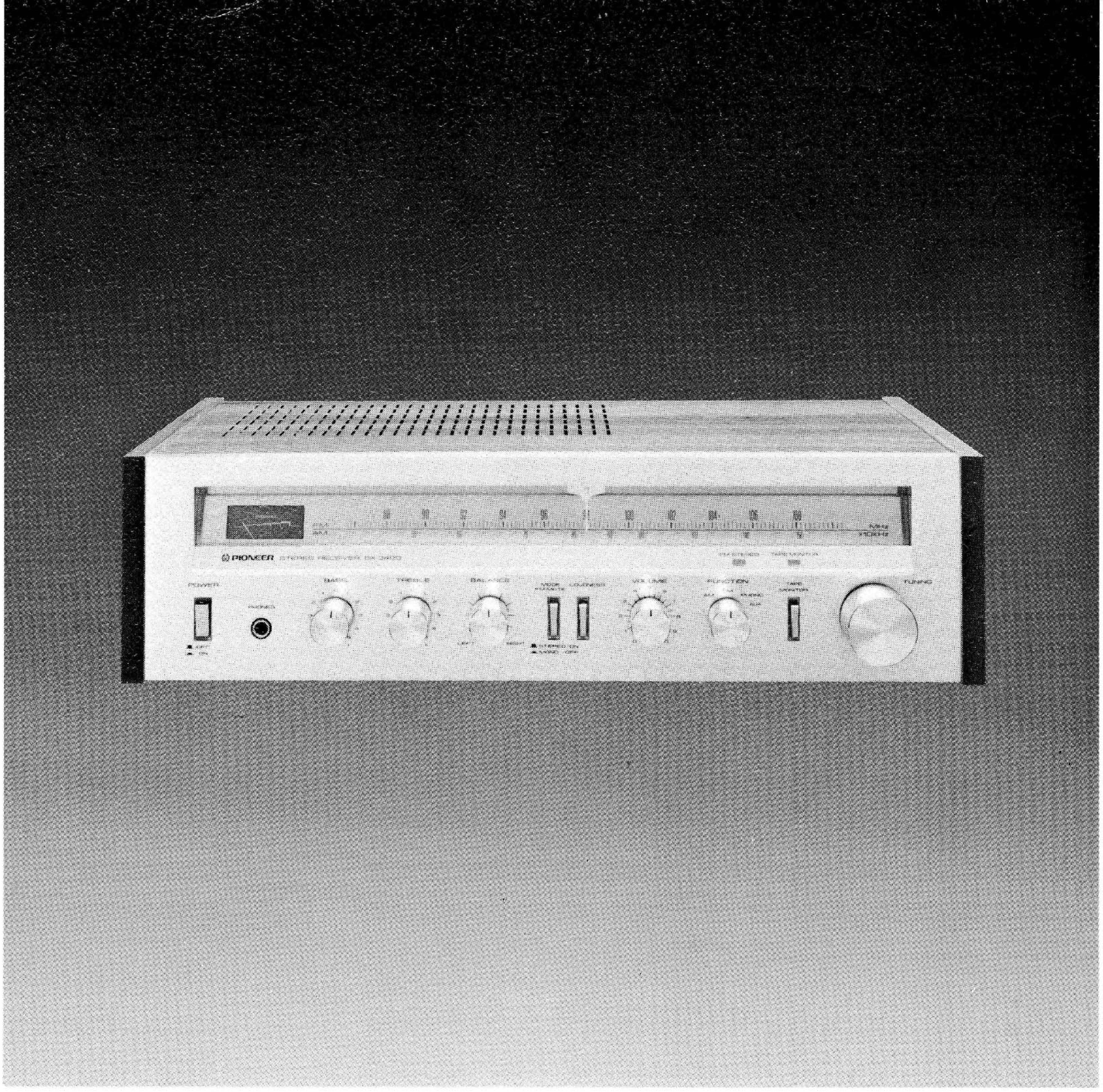

Service Manual

STEREO RECEIVER

SX-3400

PIONEER®

MODEL SX-3400 COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
KC	120V only	Canada model
S	110V, 120V, 220V and 240V (switchable)	General export model

This service manual is applicable to the KU type. When repairing S type, please see the additional service manual (page 25 – 32).

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1. SPECIFICATIONS

Amplifier Section

Continuous power output of 15watts* per channel, min., at 8ohms from 20Hertz to 20,000 Hertz with no more than 0.08% total harmonic distortion.

Total Harmonic Distortion (20 Hertz to 20,000 Hertz, 8 ohms, from AUX)	
continuous rated power output	No more than 0.08%
7.5 watts per channel power output	No more than 0.08%
1 watt per channel power output	No more than 0.08%
Intermodulation Distortion (50 Hertz : 7,000 Hertz = 4:1, 8 ohms, from AUX)	
continuous rated power output	No more than 0.08%
7.5 watts per channel power output	No more than 0.08%
1 watt per channel power output	No more than 0.08%
Damping Factor (20 Hertz to 20,000 Hertz, 8 ohms)	30
Input (Sensitivity/Impedance)	
PHONO	2.5mV/50 kilohms
AUX, TAPE PLAY	150mV/50 kilohms
Phono Overload Level (T.H.D. 0.1%, 1,000Hz)	
PHONO	140mV
Output (Level/Impedance)	
TAPE REC	150mV/2.2 kilohms
Speaker	4 to 16Ω
Frequency Response	
PHONO (RIAA Equalization)	30Hz to 15,000Hz ±1dB
AUX, TAPE PLAY	20Hz to 80,000Hz ±3dB
Tone Control	
BASS	±8dB (100Hz)
TREBLE	±8dB (10kHz)
Loudness Contour (Volume control set at –40dB position	+6dB (100Hz)
Hum and Noise (IHF, short-circuited, A network)	
PHONO	70dB
AUX, TAPE PLAY	98dB

FM Tuner Section

Usable Sensitivity (IHF)	12.1dBf (2.2μV)
50 dB Quieting Sensitivity	
MONO	17.2dBf (4μV)
STEREO	39.2dBf (50μV)
Signal-to-Noise Ratio (at 65dBf)	
MONO	75dB
STEREO	70dB
Distortion (at 65dBf)	
MONO	1kHz; 0.5%
STEREO	1kHz; 0.3%
Capture Ratio	2.5dB
Alternate channel Selectivity	
400kHz	60dB
Stereo Separation	
1kHz	45dB
30Hz to 15kHz	30dB
Frequency Response	30Hz to 15kHz $^{+0.5}_{-1.0}$dB
Spurious Response Ratio	65dB
Image Response Ratio	65dB
IF Response Ratio	90dB
AM Suppression Ratio	50dB
Subcarrier Product Ratio	30dB
SCA Rejection Ratio	60dB
Muting Threshold	25dBf (9.74μV)
Antenna Input	300 ohms balanced, 75 ohms unbalanced

AM Tuner Section

Sensitivity (IHF, ferrite antenna)	270μV/m
(IHF, ext. antenna)	11μV
Selectivity	27dB
Signal-to-Noise Ratio	52dB
Image Response Ratio	32dB
IF Response Ratio	40dB
Antenna	Ferrite loopsitck antenna

Miscellaneous

Power Requirements	AC 120V, 60Hz
Power Consumption	60W (UL)
Dimensions	444(W) x 128(H) x 292(D) mm 17-1/2(W) x 5-1/16(H) x 11-1/2(D) in
Weight (without package)	5.5kg (12 lb 2 oz)

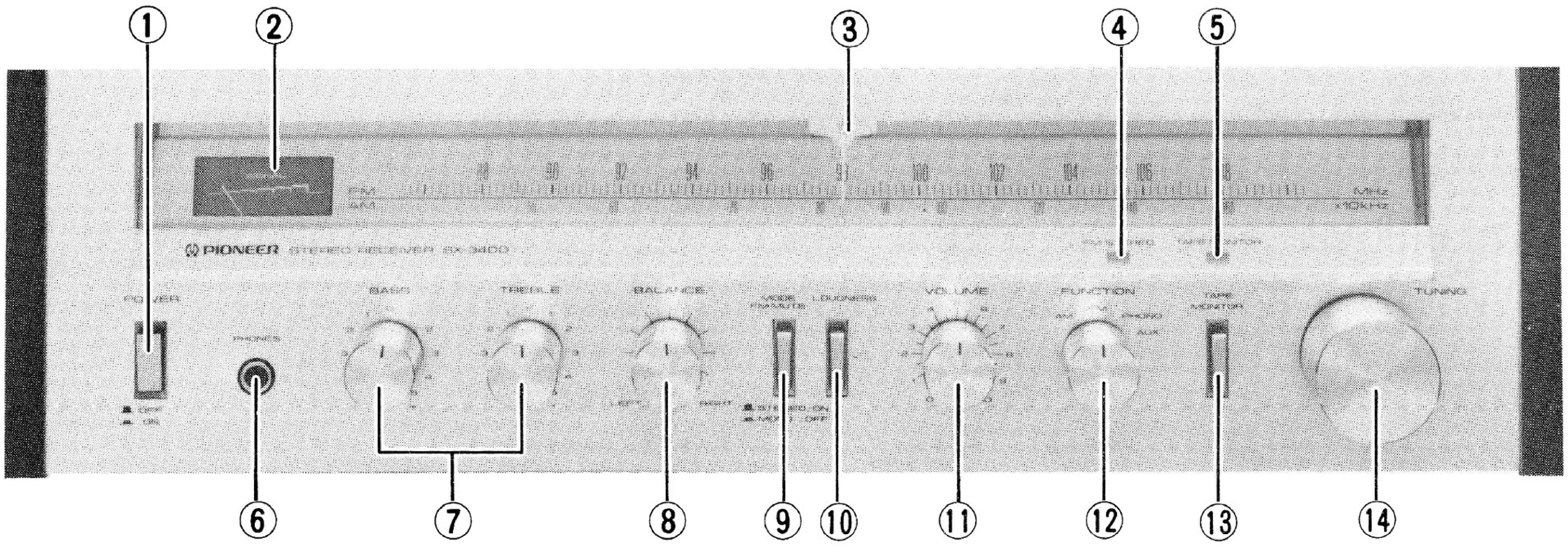
Furnished Parts

Operating instructions	1
FM T-type antenna	1

**Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power OUtput Claims for Amplifiers.*

NOTE:
Specifications and the design subject to possible modifications without notice due to improvements.

2. FRONT PANEL FACILITIES



Walnut grained vinyl metal top and walnut grained vinyl side panels are used in the construction of this cabinet.

① POWER SWITCH

Depress this switch to supply power to the receiver.

② SIGNAL METER

This meter indicates the antenna input level of the broadcasting wave. The higher the input level, the more the meter deflects toward right. When selecting the desired station, find the position of the tuning knob which effects the maximum deflection of the meter pointer.

③ DIAL POINTER

This pointer indicates the broadcasting stations.

④ FM STEREO INDICATOR

This indicator lights up when the tuner is receiving a stereo program.

⑤ TAPE MONITOR INDICATOR

When the tape monitor switch is set to ON, this indicator lights up. This lamp indicates the receiver is monitoring or playing back the tape on the tape deck connected to the TAPE jacks.

⑥ HEADPHONE JACK

Plug the headphones into this jack when you want to listen through your stereo headphones.

NOTE:
When the headphone plug is connected to this jack, the sound will no loger be heard through the speakers.

⑦ BASS AND TREBLE CONTROLS

Use these controls to adjust the bass and the treble. If you turn the bass control to the right from its center position, you will be able to emphasize the sound in the low-frequency range. Conversely, turning this control left from the center position, you will attenuate the sound in the low-frequency range.

You can use the treble control to adjust the sound in the high-frequency range.

⑧ BALANCE CONTROL

Use this control to balance the volume of the left and right channels. If the sound appears to be louder on the right, it means that the volume of the right channel is higher. Turn the balance control to the left and adjust.

Conversely, if the sound appears to be louder on the left, it means that the volume of the left channel is higher. Therefore, turn the balance control to the right and adjust.

⑨ MODE/FM MUTING SWITCH

This switch is a combination of the FM muting switch and the mode selector switch. When the switch is left undepressed (STEREO/ON), the reproduction is in stereo mode, while the FM muting function acts to suppress unpleasant interstation noise while listening to FM broadcasting.

When the switch is depressed (MONO/OFF position), however, reproduction is in mono mode, while the FM muting function does not act, thus enabling suitable reception of weak radio stations when tuning in to the FM broadcasting station.

NOTE:
Recording stereophonically with the mode/FM muting switch in the MONO/OFF position may cause deterioration in channel separation.

⑩ LOUDNESS SWITCH

When listening to a performance with the volume control turned down, depress this switch and the bass will be accentuated.

When the volume is low, the human ear finds it harder to hear the bass than when the volume is high. The loudness switch is thus designed to compensate for this deficiency. By depressing this switch, the bass come through much more strongly and the sound takes on a punch even when the volume control is turned down.

⑪ VOLUME CONTROL

Use this control to adjust the output level to the speakers and headphones. Turn it clockwise to increase the output level. No sound will be heard if you set it to "0"

⑫ FUNCTION SELECTOR

Use this selector to select the program source.

AM:	Set here when receiving an AM broadcast.
FM:	Set here when receiving an FM broadcast.
PHONO:	Set here when playing records on a turntable connected to the PHONO jacks.
AUX:	Set here when listening to a program source which is connected to the AUX jacks.

⑬ TAPE MONITOR SWITCH

Depress the switch with a tape deck which is connected to the TAPE jack (REC and PLAY) when you want to monitor the playback or recording of a tape.

NOTE:
Release this switch when listening to records or a broadcasting.

⑭ TUNING KNOB

This knob is used for selection station. When selecting station, observe the signal meter.

3. DISASSEMBLY

Side Board L and R

Remove the four screws ❶.

Top Plate

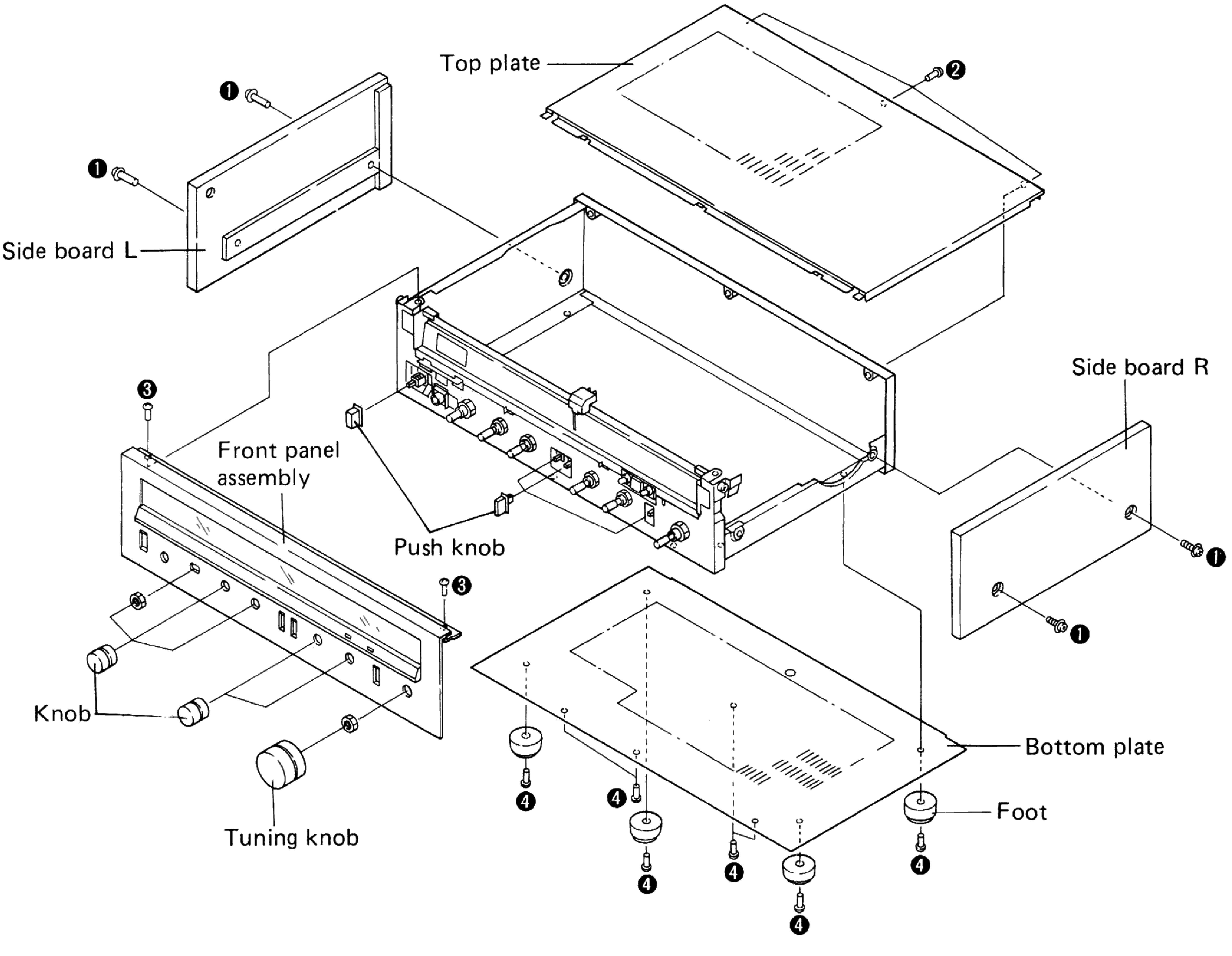
Remove the three screws ❷.

Front Panel Assembly

1. Pull off the all control knobs.
2. Remove the two screws ❸.

Bottom Plate

Remove the eight screws ❹.



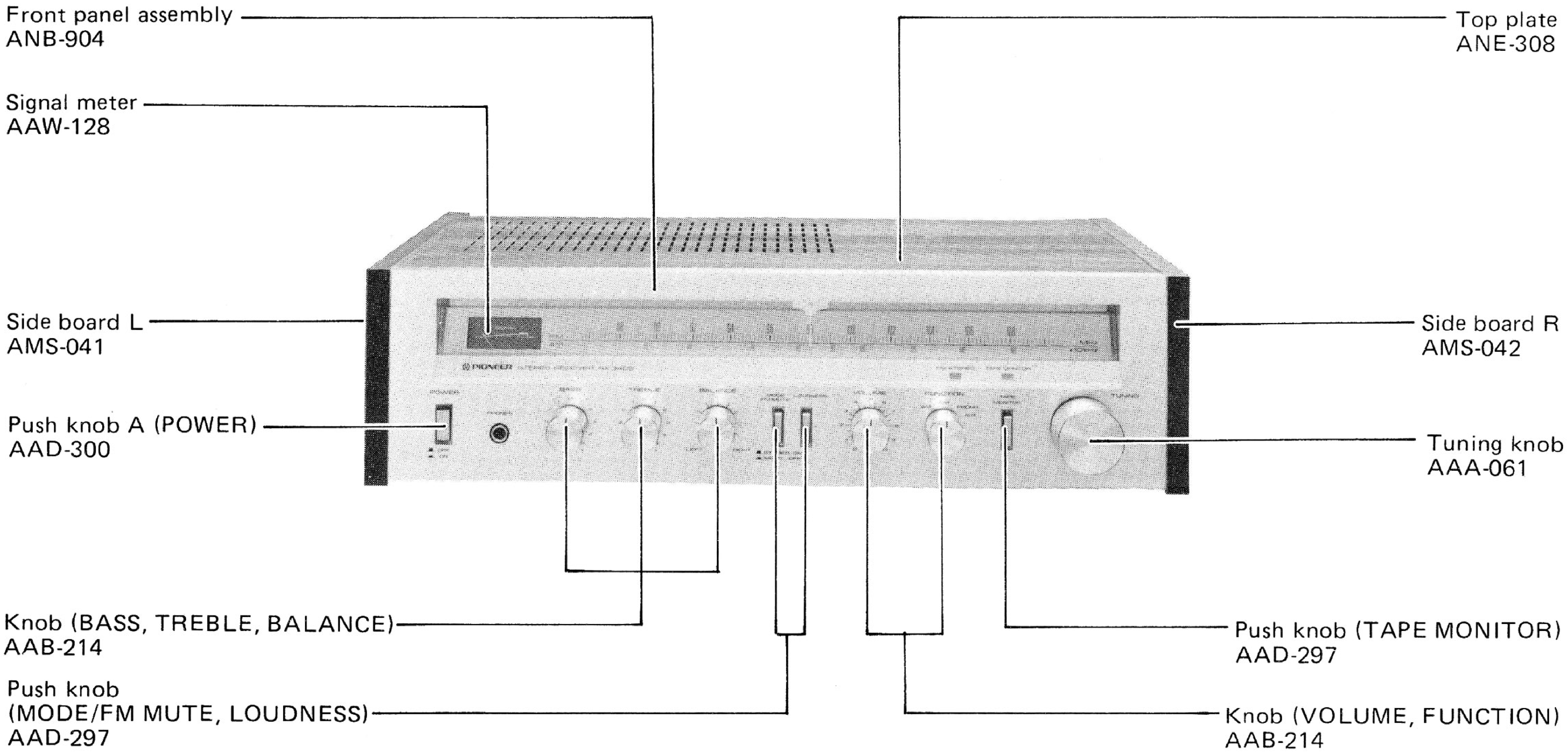
Top plate
❷
❶
❶
Side board L
Side board R
❶
❶
❸
Front panel assembly
Push knob
❸
Knob
Tuning knob
Bottom plate
Foot
❹
❹
❹
❹
❹
❹

4. PARTS LOCATION

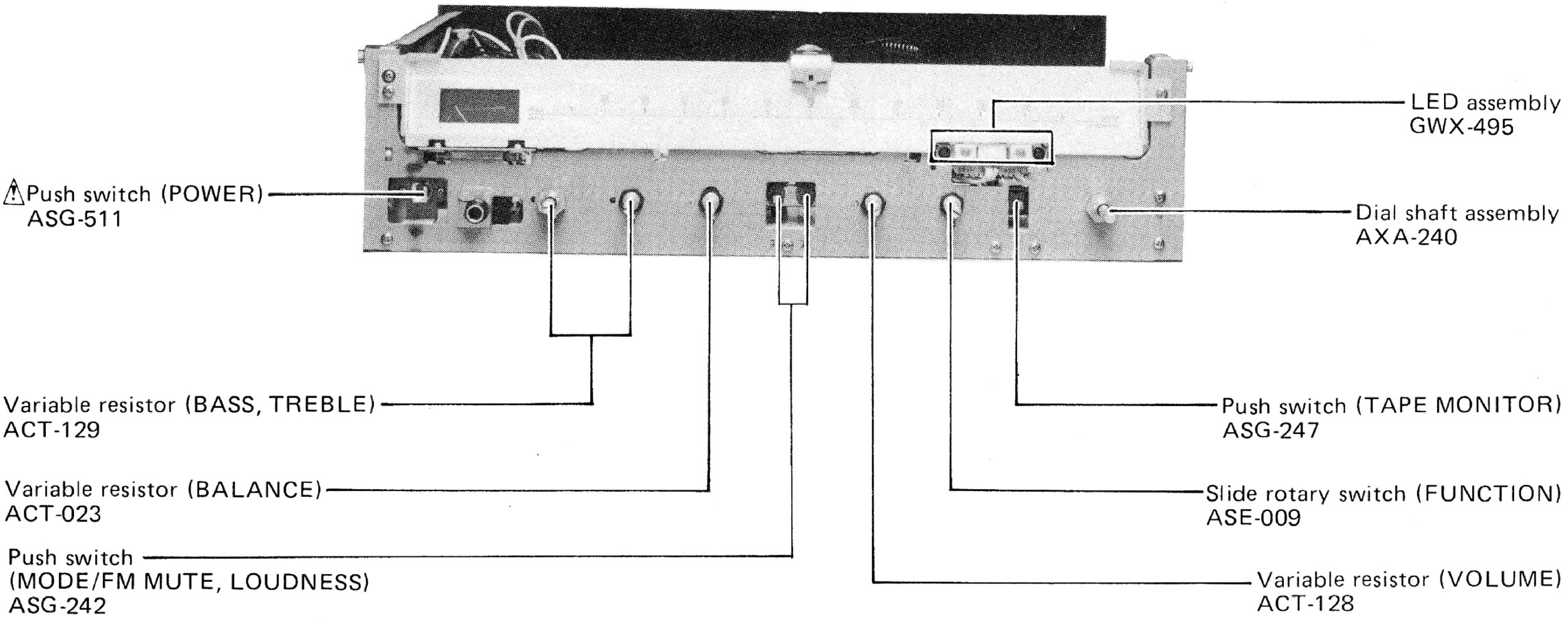
NOTE:

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

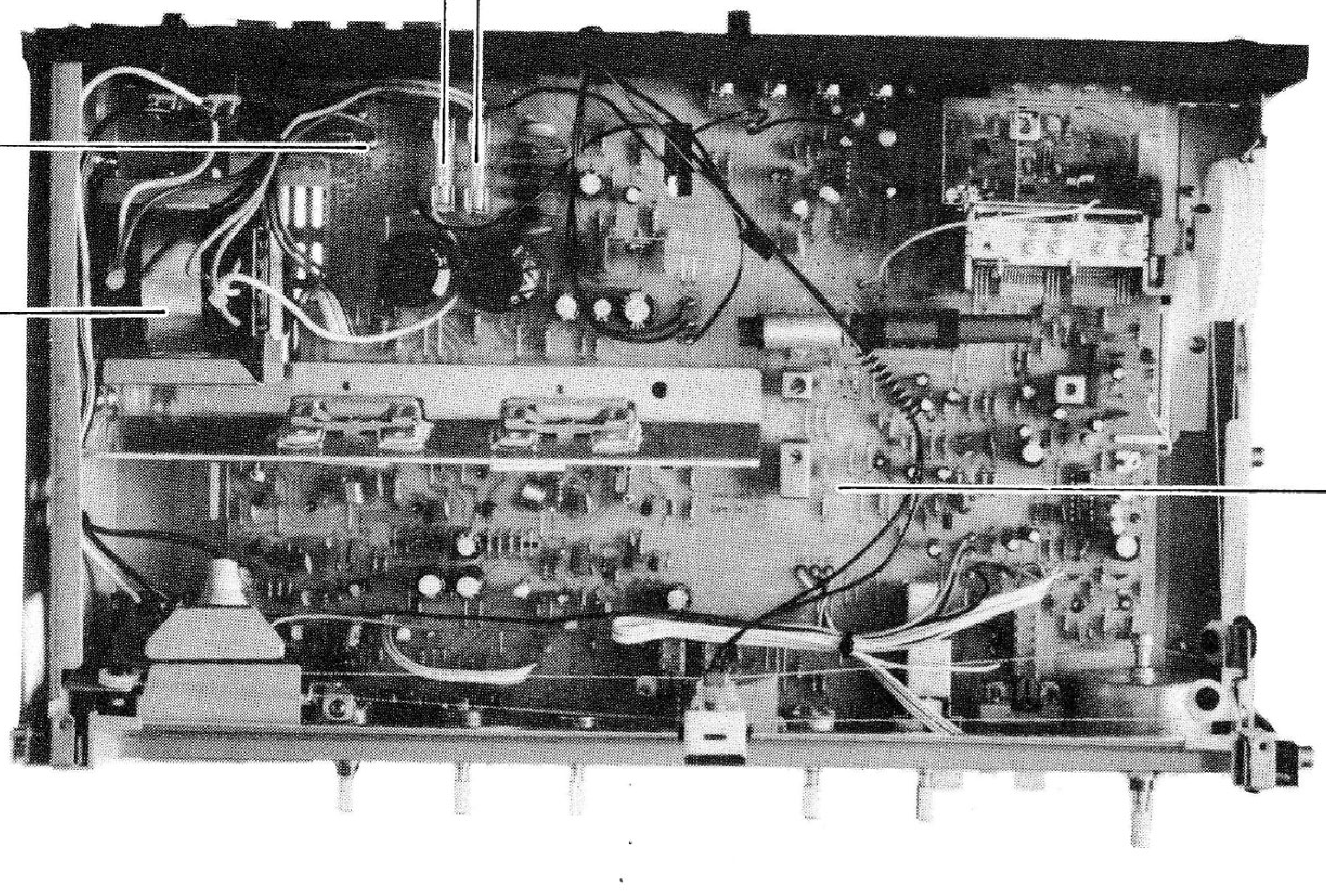
Front Panel View


Front panel assembly ANB-904
Signal meter AAW-128
Top plate ANE-308
Side board L AMS-041
Side board R AMS-042
Push knob A (POWER) AAD-300
Tuning knob AAA-061
Knob (BASS, TREBLE, BALANCE) AAB-214
Push knob (TAPE MONITOR) AAD-297
Push knob (MODE/FM MUTE, LOUDNESS) AAD-297
Knob (VOLUME, FUNCTION) AAB-214

Front View with Front Panel Removed


LED assembly GWX-495
⚠Push switch (POWER) ASG-511
Dial shaft assembly AXA-240
Variable resistor (BASS, TREBLE) ACT-129
Push switch (TAPE MONITOR) ASG-247
Variable resistor (BALANCE) ACT-023
Slide rotary switch (FUNCTION) ASE-009
Push switch (MODE/FM MUTE, LOUDNESS) ASG-242
Variable resistor (VOLUME) ACT-128

Top View with Top Plate Removed



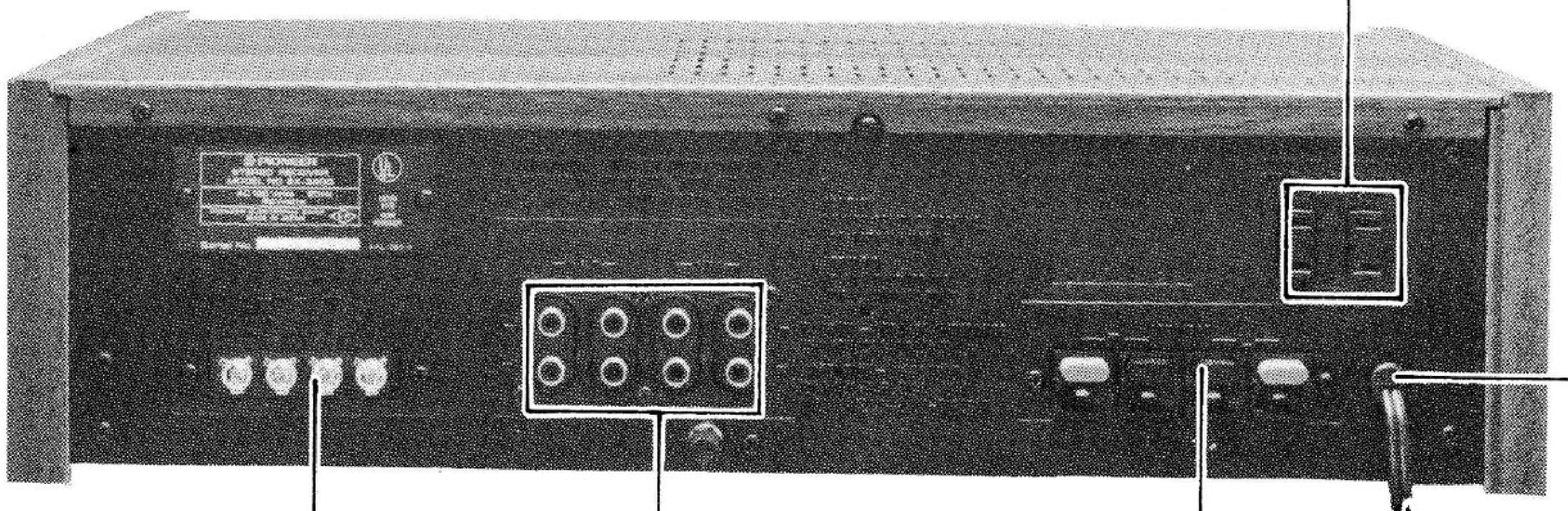
⚠ Fuse (4A)
AEK-100

⚠ Fuse (2A)
AEK-103

⚠ Power transformer
ATT-687

Tuner/AF amplifier assembly
GWM-163

Rear Panel View



⚠ AC socket
AKP-039

⚠ Strain relief
AEC-358

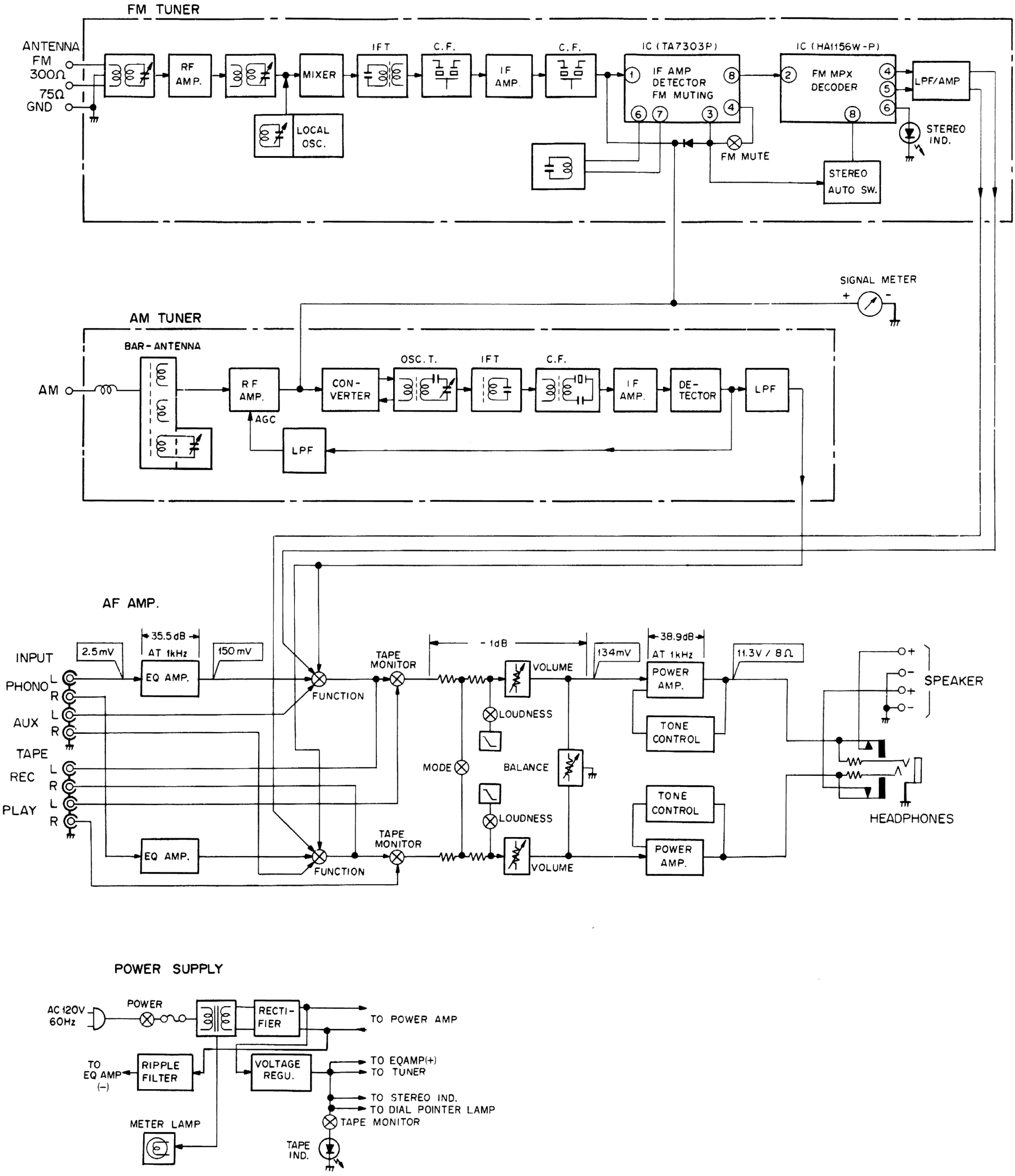
⚠ Power cord
ADG-023

Terminal (ANTENNA)
AKA-016

Terminal (INPUT, TAPE)
AKB-063

Terminal (SPEAKERS)
AKE-048

5. BLOCK DIAGRAM


FM TUNER
ANTENNA
FM
300Ω
75Ω
GND
RF AMP.
MIXER
LOCAL OSC.
IFT
C.F.
IF AMP.
C.F.
IC (TA7303P)
IF AMP
DETECTOR
FM MUTING
① ⑥ ⑦ ③ ④ ⑧
FM MUTE
IC (HA1156W-P)
FM MPX DECODER
② ④ ⑤ ⑥ ⑧
LPF/AMP
STEREO IND.
STEREO AUTO SW.
SIGNAL METER
+
-
AM TUNER
BAR-ANTENNA
AM
RF AMP.
AGC
LPF
CON-VERTER
OSC. T.
IFT
C.F.
IF AMP.
DE-TECTOR
LPF
AF AMP.
INPUT
PHONO L R
AUX L R
TAPE
REC L R
PLAY L R
2.5mV
35.5dB AT 1kHz
EQ AMP.
150 mV
FUNCTION
TAPE MONITOR
-1dB
LOUDNESS
MODE
VOLUME
BALANCE
134mV
38.9dB AT 1kHz
POWER AMP.
TONE CONTROL
11.3V / 8Ω
SPEAKER
+
-
+
-
HEADPHONES
EQ AMP.
FUNCTION
TAPE MONITOR
LOUDNESS
VOLUME
TONE CONTROL
POWER AMP.
POWER SUPPLY
AC 120V 60Hz
POWER
RECTI-FIER
TO POWER AMP
RIPPLE FILTER
TO EQ AMP (-)
VOLTAGE REGU.
TO EQAMP(+)
TO TUNER
TO STEREO IND.
TO DIAL POINTER LAMP
TAPE MONITOR
TAPE IND.
METER LAMP

6. CIRCUIT DESCRIPTIONS

AM Tuner

The AM tuner stage employs a 2-ganged tuning capacitor, a single-element ceramic filter, an NPN transistor RF amplifier, a PNP transistor mixer (converter), and an NPN transistor IF amplifier.

FM Tuner

The FM front end is comprised of a J-FET (2SK168) single-stage RF amplifier, an NPN transistor mixer, and an NPN transistor modified Clapp type local oscillator.

The IF stage consists of 2 dual-element ceramic filters (selector elements), and an IF system IC (TA7303P) which incorporates the IF limiter amplifier, FM detector, meter drive circuit, and an FM muting circuit.

The stereo detector stage employs an FM stereo demodulator IC (HA1156W-P), while the pilot signal leak (19kHz) and sub-carrier signal (frequencies above 23kHz) are removed by an 18dB/oct. active filter consisting of a PNP transistor. This active filter also serves as an amplifier for frequencies within its passband, and eliminates crosstalk.

Equalizer Amplifier

This circuit is an NFB type equalizer amplifier, with one high-performance IC (NJM4558DX) in both L and R channels.

This IC is a low noise type, and provide an open-loop gain of 70dB. The main performance specifications for this circuit include a voltage gain of 35.5dB (at 1kHz), a phono dynamic margin or overload level of 140mV (at 1kHz, THD 0.1%), and equalization within ±1dB (30Hz — 15kHz).

Power Amplifier

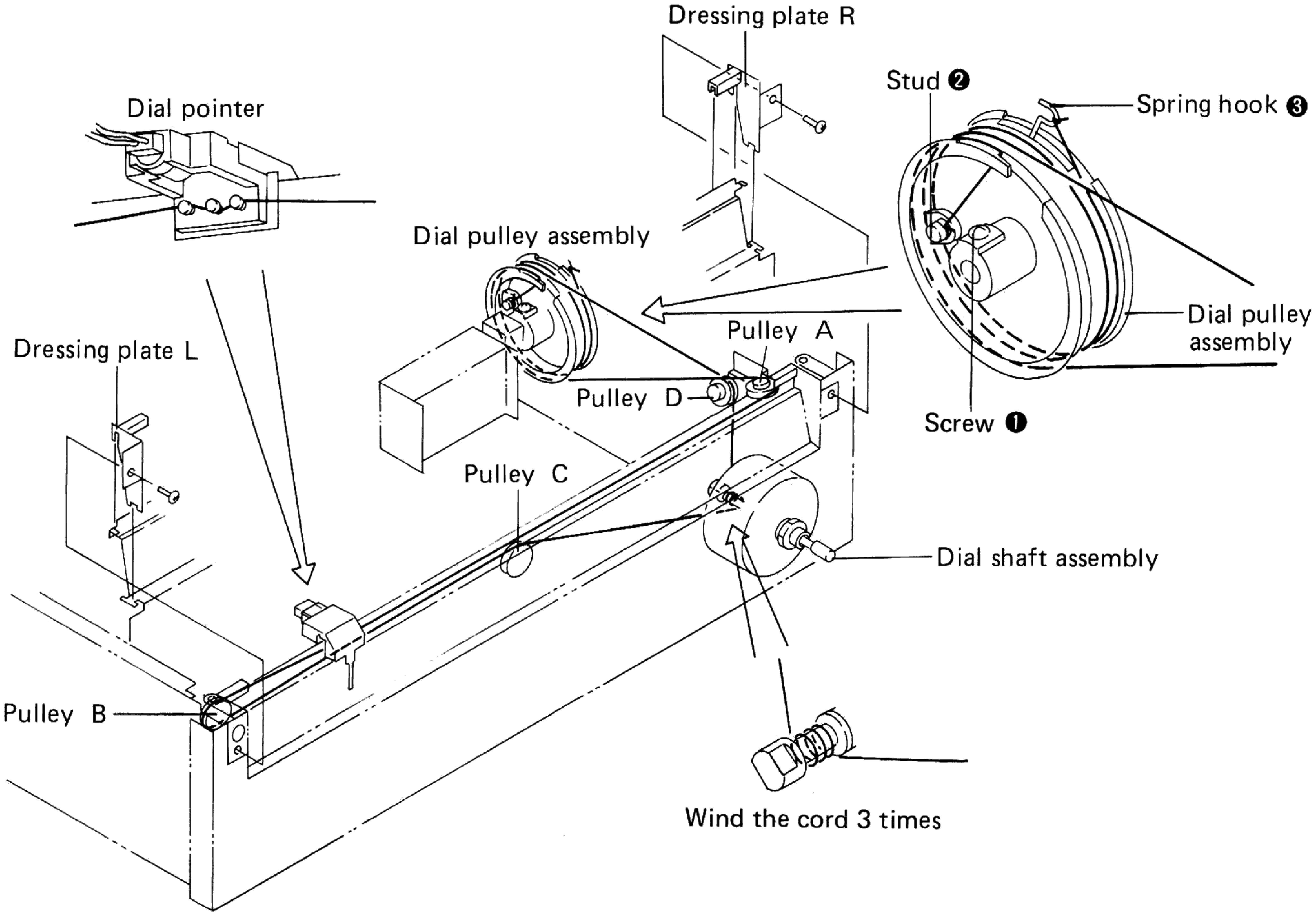
This all-stage direct-coupled pure complementary SEPP circuit features a current mirror load differential amplifier in the first stage, and incorporates the tone control circuits in the NFB loop.

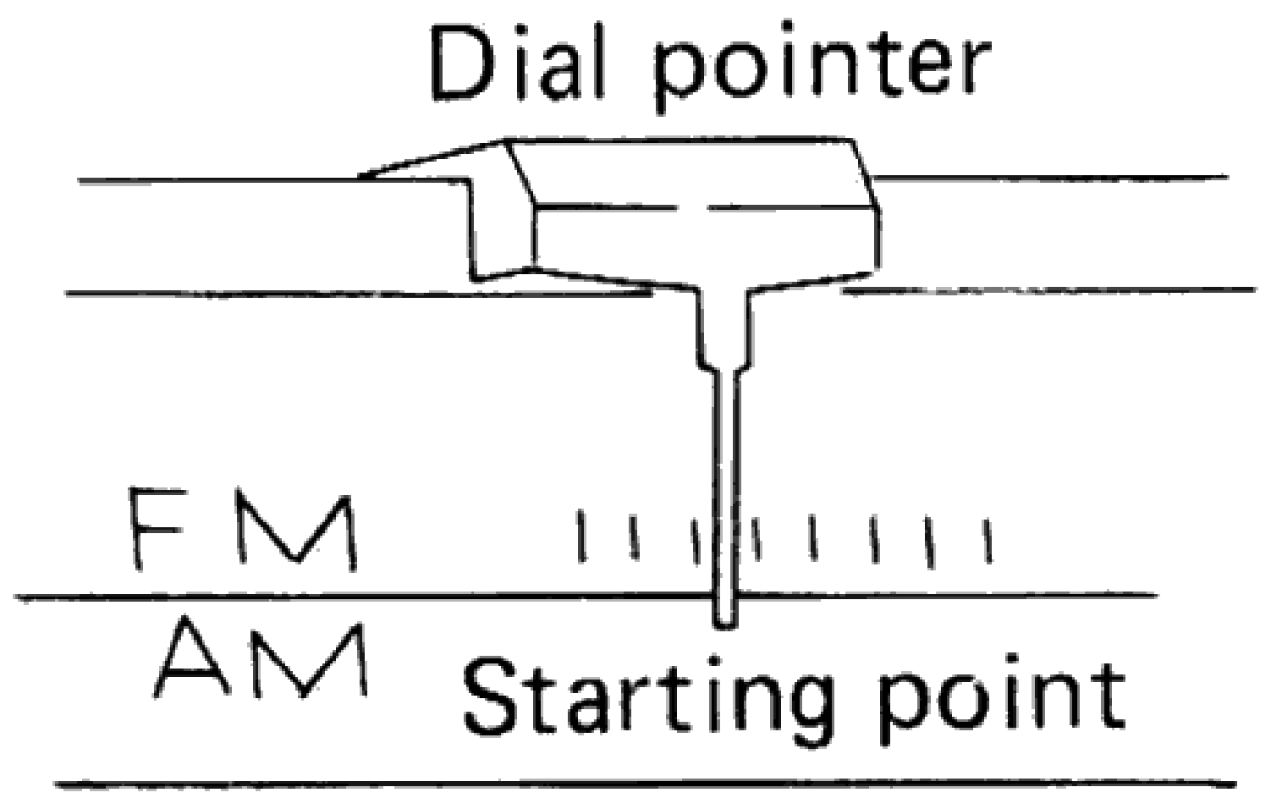
Although the incorporation of the tone control circuits in the power amplifier stage reduces the number of elements that the signal has to pass through, and thereby further reduces noise, distortion, and cost, the power stage does require a higher gain and a higher degree of stability. In the SX-3400, this high gain and high stability are achieved by a current mirror load differential amplifier in the first stage and by the use of a constant current circuit for the load of the pre-driver stage.

The power amplifier stage is a complementary 2-stage Darlington connection, resulting in an output power rating of 15W + 15W (8Ω, 20Hz — 20kHz), harmonic distortion of less than 0.08% (20Hz — 20kHz at rated output). Certainly a superb performance for an amplifier of this class is obtained.

7. DIAL CORD STRINGING

1. Remove the dial pulley assembly from the shaft of the tuning capacitor by undoing screw ❶.
2. Tie one end of the cord to the stud ❷ located inside the dial pulley assembly.
3. Rotate the tuning capacitor right around until the rotor blades are fully intermeshed.
4. Secure the dial pulley assembly back onto the shaft of the tuning capacitor, making sure that the securing screws ❶ faces directly upward.
5. Pass the cord out through the small opening in the circumference of the dial pulley assembly, and then take it over pulleys A , B and C in that sequence.
6. Wind the cord around the dial shaft 3 times.
7. Pass it over pulley D , wind it around the dial pulley assembly 2 times, and finally tie it to the spring hook ❸ so that it is tensioned.
8. Turn the dial shaft, and check that the cord moves smoothly. Cut off any excess cord.
9. Turn the dial shaft counter-clockwise as far as it will go.
10. Align the dial pointer with the starting point of the dial scale, and then pass the cord over it.
11. Check that the dial pointer is in line with the starting point of the dial scale.
12. Finally apply the locking paint to the cord securing positions (stud ❸ and spring hook ❹) and the dial pointer connection.


Dressing plate R
Stud ❷
Spring hook ❸
Dial pointer
Dial pulley assembly
Dressing plate L
Pulley A
Pulley D
Dial pulley assembly
Screw ❶
Pulley C
Dial shaft assembly
Pulley B
Wind the cord 3 times


Dial pointer
FM
AM
Starting point

8. ADJUSTMENTS

8.1 IDLE CURRENT ADJUSTMENT

1. Connect an 8Ω resistor to the speaker output terminals.
2. Turn to VOLUME control down to minimum level, turn the power on, and wait about 10 minutes.
3. Connect a DC voltmeter to the TP terminals of the Tuner/AF assembly; TP1 (+) and TP2 (−) for L ch, and TP3 (+) and TP4 (−) for R ch.
4. Check that the voltage between TP1 and TP2, and TP3 and TP4 lies within the DC 2mV — 250mV range. If the voltage is less than 2mV, cut jumper wire A for L ch, and jumper wire B for R ch. If the voltage exceeds 250mV, check for circuit failure.

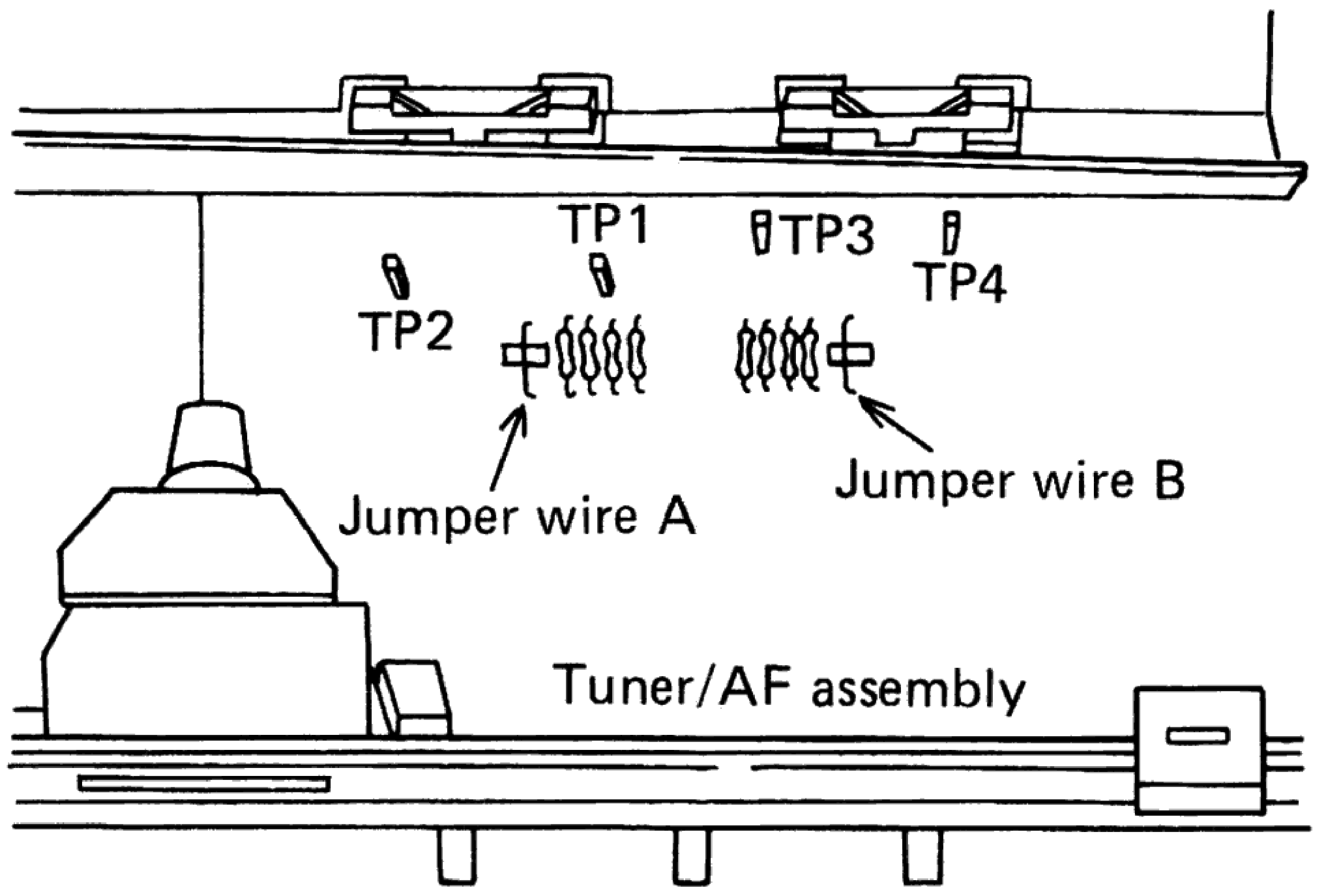


Fig. 8-1 Idle current adjustment

8.2 AM TUNER

- Connect the AM SG (AM signal generator) to the AM ANTENNA terminal via 1kΩ resistor.
- Set the FUNCTION selector to the AM position.

Step	AM SG (400Hz, 30% MOD.)		Position of tuning dial	Adjustment point	Adjustment method
	Frequency	Level			
1	600kHz	100dB	600kHz	T4	Obtain maximum deflection of the SIGNAL meter
2	1400kHz		1400kHz	TC5	
3	600kHz	30dB	600kHz	TC4, T3 bar-antenna	
4	1400kHz		1400kHz	TC5, TC4	
5	Repeat steps 3 to 4 as above.				
6	1000kHz	30dB	1000kHz	F3	

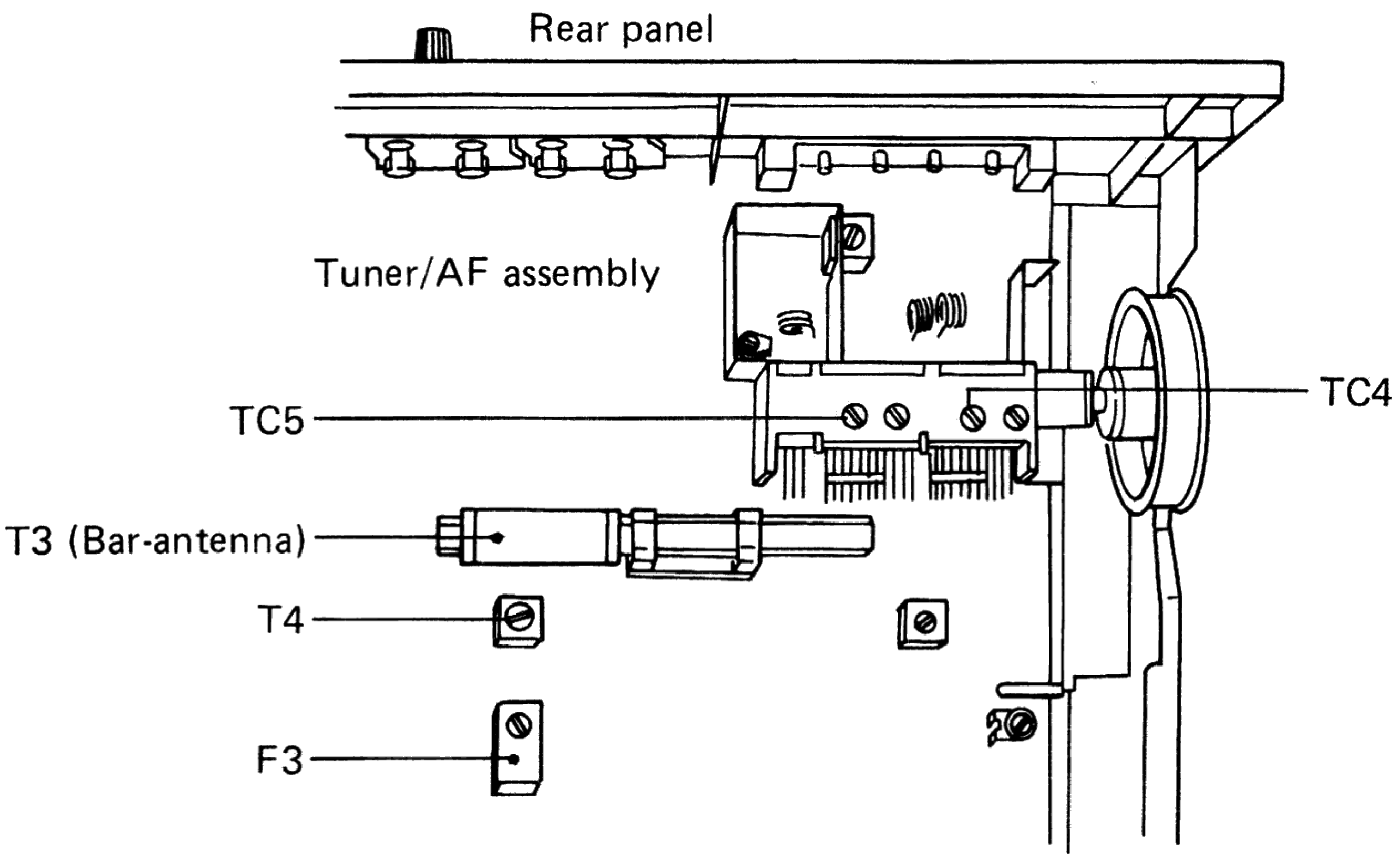


Fig. 8-2 AM tuner adjustment

8.3 FM TUNER

- Connect the FM SG (FM signal generator) to the FM antenna 300Ω terminal.
- Switch the FUNCTION selector to the FM position, the MODE/FM MUTE switch to the OFF/ MONO position.
- The tuning coils in the FM front end does not have an adjusting core. Consequently, tracking adjustments at 90MHz are performed by regulating the gap between rotor and stator of the tuning capacitors (VC1, VC2, VC3). The expression "adjust VC" found in the text means that the two outer rotor blades of each of these tuning capacitors are to be extended outwards with spatula (Part No. GGK-066) as shown in Fig. 8-3.

Step	FM SG (400Hz, ±75kHz DEV.)		Position of tuning dial	Adjustment point	Adjustment method
	Frequency	Level			
1	106MHz	106dB	106MHz	TC3	Obtain maximum deflection of the SIGNAL meter
2	90MHz		90MHz	VC3	
3	106MHz	20dB	106MHz	T1, TC1, TC2	
4	90MHz		90MHz	VC1, VC2	
5	Repeat steps 3 to 4 as above				
6	98MHz	66dB	98MHz	T2	Reduce distortion in the output (TAPE REC terminal) to minimum.

Multiplex Decoder

- Connect the MPX SG (FM multiplex generator) to the FM SG external modulator terminal.
- Set the FM SG output to 98MHz and 66dB (modulation mode to external), and tune the SX-3400 to this position.
- Set the MODE/FM MUTE switch to the ON/STEREO position.

Step	FM MPX SG	Adjustment point	Adjustment method
1	No signal (unmodulated)	VR5	Obtain a 19kHz signal at TP terminal (No.9).
2	Main: 1kHz, L+R, ±67.5kHz DEV. Pilot: 19kHz, ±7.5kHz DEV.	T1 (by up to 90° in either direction)	Reduce distortion in the output (TAPE REC terminal) to a minimum.

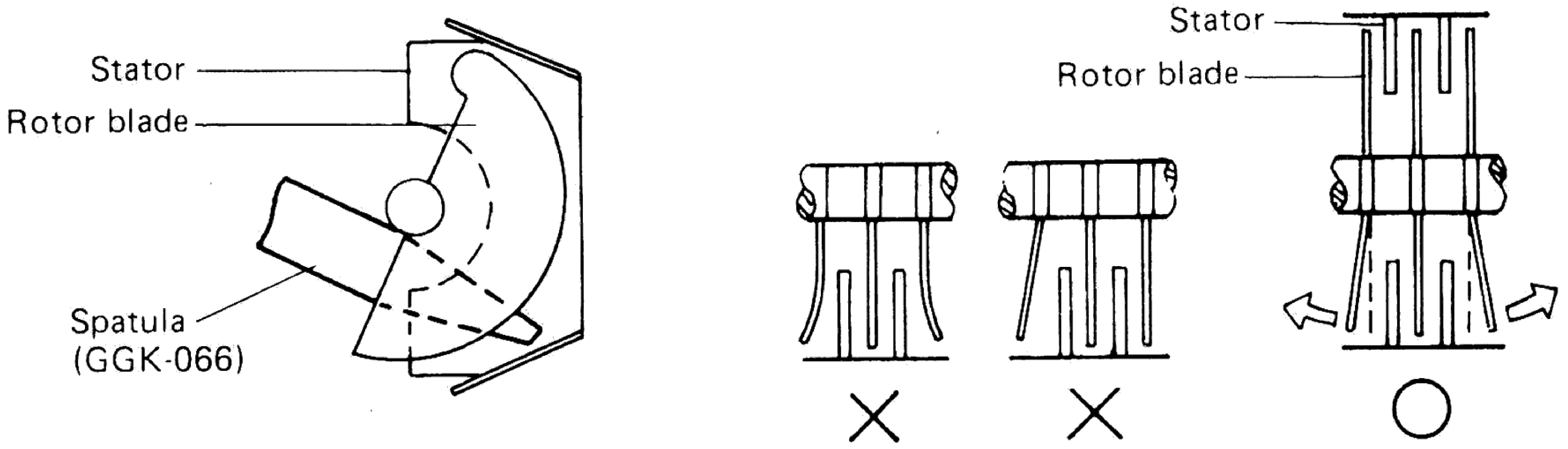


Fig. 8-3 Tuning capacitor adjustment

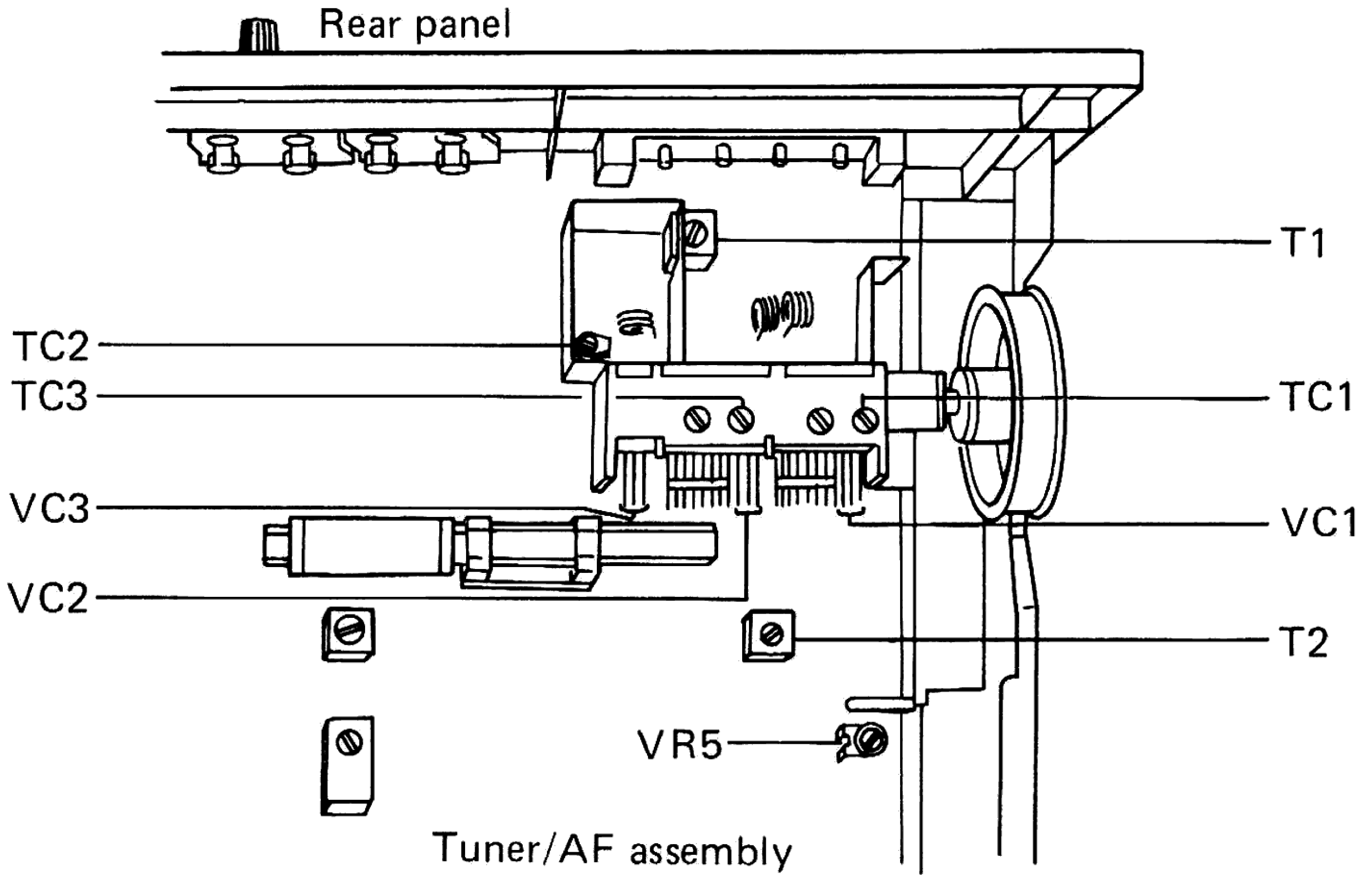
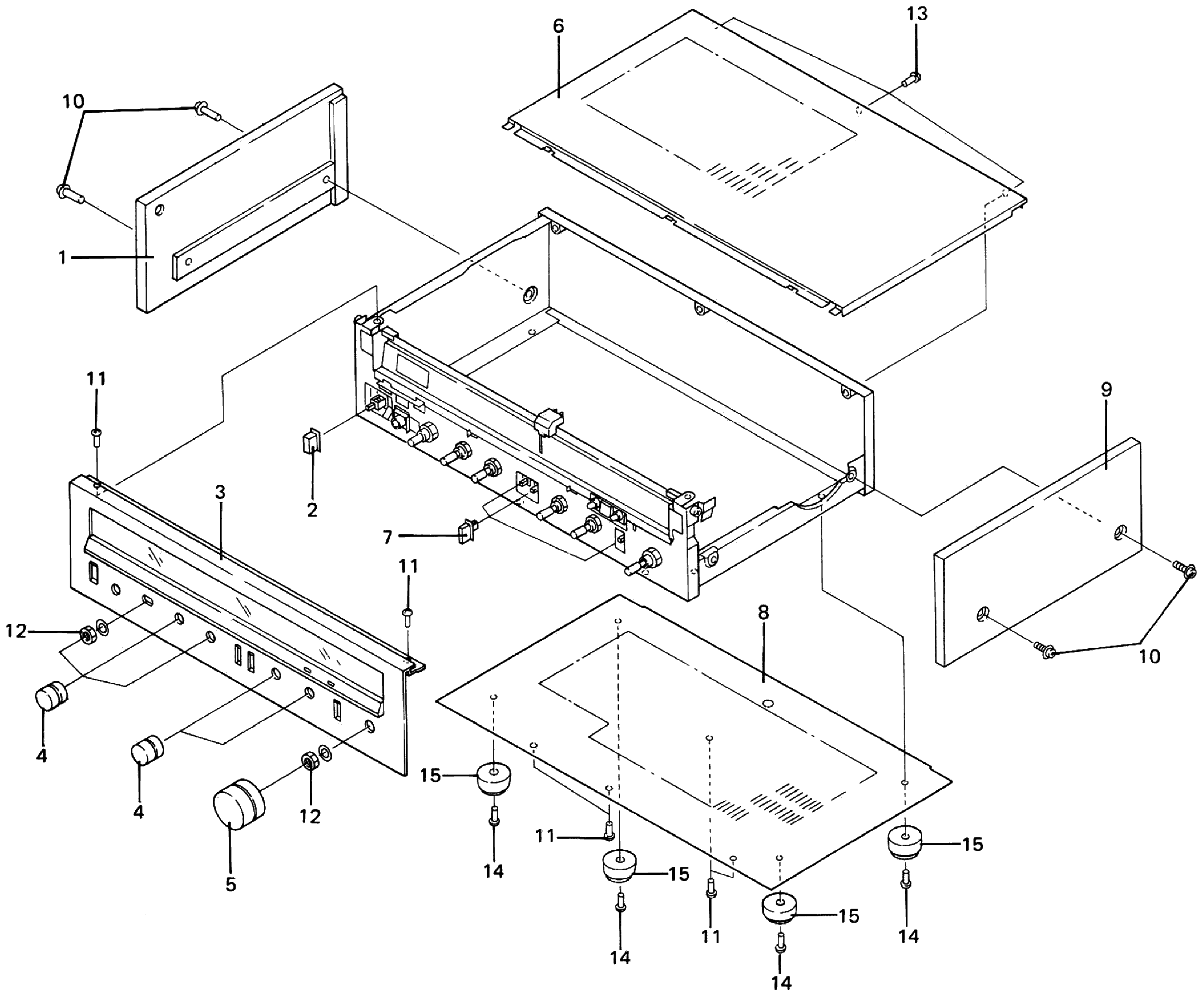

Rear panel
T1
TC2
TC3
TC1
VC3
VC1
VC2
T2
VR5
Tuner/AF assembly

Fig. 8-4 FM tuner adjustment

9. EXPLODED VIEWS

Exterior Components



Parts List

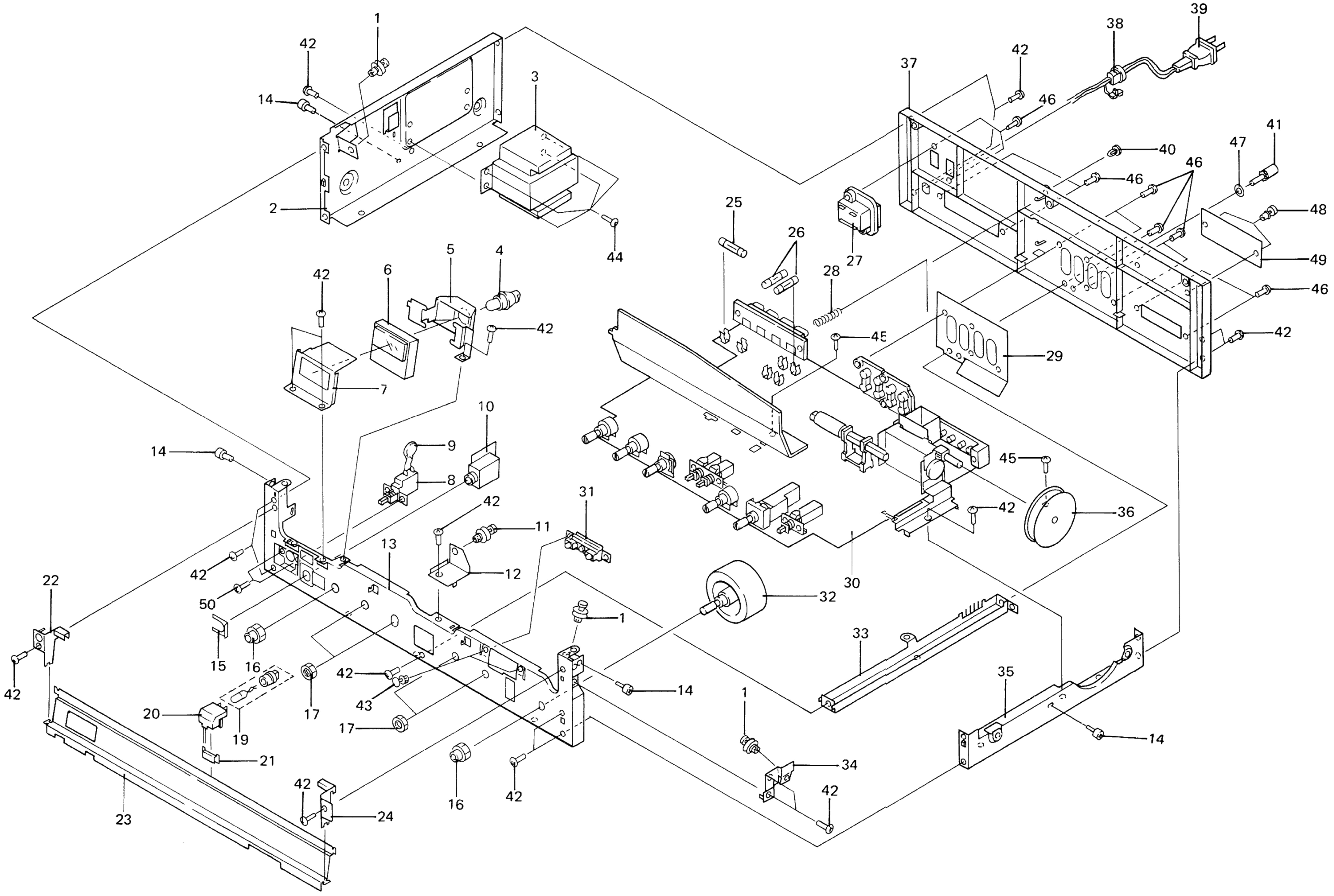
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

Key No.	Part No.	Description
1.	AMS-041	Side board L
2.	AAD-300	Push knob A
3.	ANB-904	Front panel assembly
4.	AAB-214	Knob
5.	AAA-061	Tuning knob
6.	ANE-308	Top plate
7.	AAD-297	Push knob
8.		Bottom plate
9.	AMS-042	Side board R
10.	DCZ40P150FZK	Screw

Key No.	Part No.	Description
11.	VBZ30P060FMC	Screw
12.	ABN-024	Washer faced nut
13.	VBZ30P100FZK	Screw
14.	VTZ40P160FMC	Screw
15.	AEC-178	Foot assembly

Interior Components

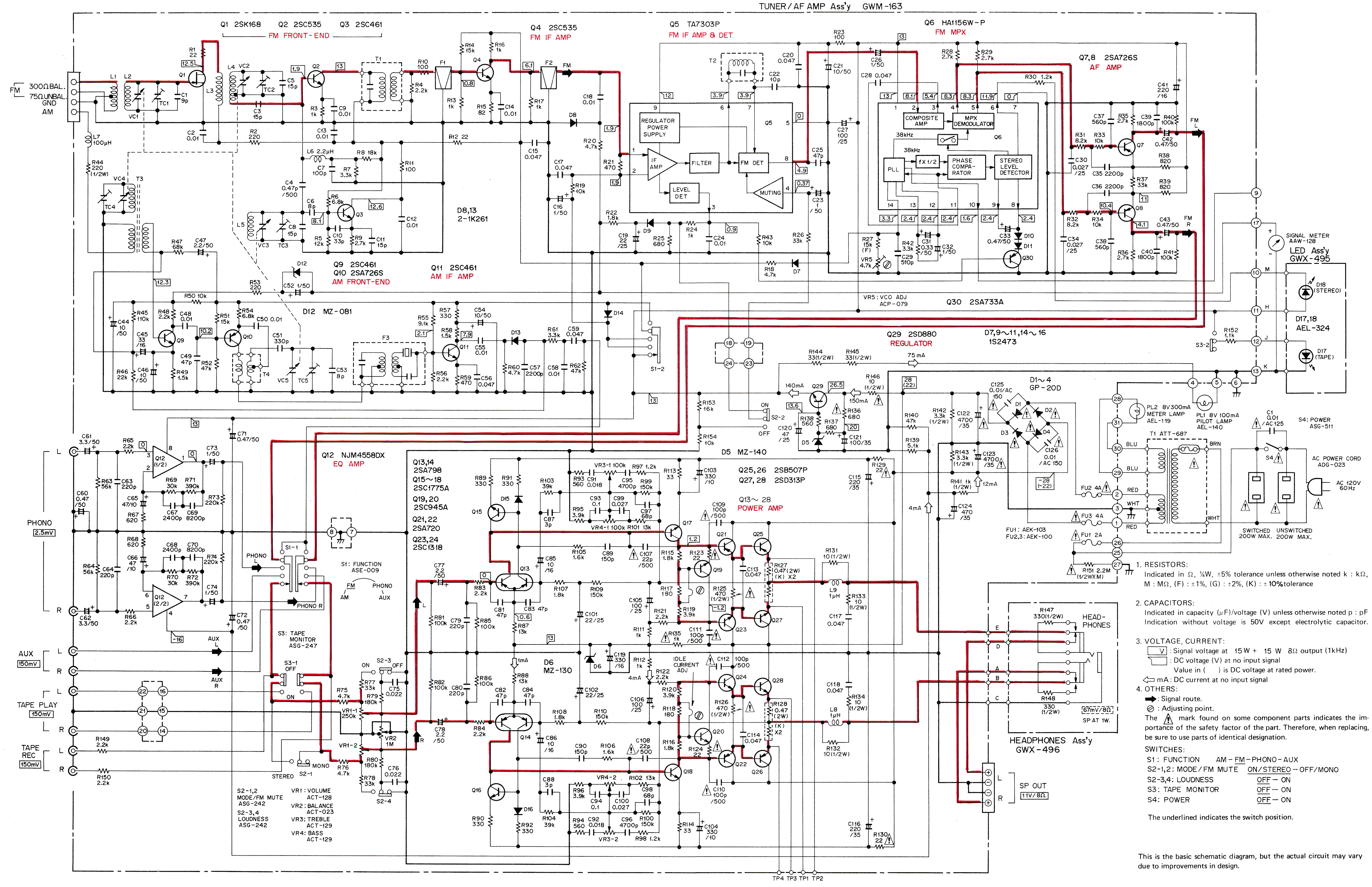


Parts List

Key No.	Part No.	Description
1.		Pulley assembly
2.		Side frame L
⚠ 3.	ATT-687	Power transformer
4.	AEL-119	Lamp (wedge type)
5.	ANG-296	Meter holder B
6.	AAW-128	Signal meter
7.	ANG-298	Meter holder A
⚠ 8.	ASG-511	Push switch
⚠ 9.	ACG-017	Capacitor
10.	GWX-496	Headphones assembly
11.	AEC-579	Small pulley
12.	ANG-297	Pulley holder
13.		Front stay
14.	ABA-204	Tapping screw
15.		Mount plate
16.	ABN-047	Boss
17.	NK90FUC	Nut
18.		....
19.	AEL-140	Lamp with wires
20.		Dial pointer assembly
21.		Smother
22.		Dial dressing plate L
23.		Dial panel
24.		Dial dressing plate R
⚠ 25.	AEK-103	Fuse 2A
⚠ 26.	AEK-100	Fuse 4A
⚠ 27.	AKP-039	AC socket
28.		Wire holder
29.		Shield plate
30.	GWM-163	Tuner/AF amplifier assembly
31.	GWX-495	LED assembly
32.	AXA-240	Dial shaft assembly
33.		Center frame
34.		Pulley holder
35.		Side frame R
36.	AXA-113	Dial pulley assembly
37.		Rear panel
⚠ 38.	AEC-358	Stain relief
⚠ 39.	ADG-023	Power cord
40.		Clip
41.		Screw (for ground)
42.	MTZ30P100FZK	Screw
43.	AEC-441	Rivet
44.	VTZ40P080FMC	Screw
45.	BBT30P080FZK	Screw
46.	MTZ30P100FZK	Screw
47.	WA35F100N080	Washer
48.	AEC-441	Rivet
49.		Plate
50.	PMZ30P060FMC	Screw

10. SCHEMATIC DIAGRAM, P.C. BOARD CONNECTION DIAGRAM AND PARTS LIST

10.1 SCHEMATIC DIAGRAM


TUNER / AF AMP Ass'y GWM-163
Q1 2SK168 Q2 2SC535 Q3 2SC461
FM FRONT-END
Q4 2SC535
FM IF AMP
Q5 TA7303P
FM IF AMP & DET
Q6 HA1156W-P
FM MPX
Q7,8 2SA726S
AF AMP
FM 300ΩBAL. 75ΩUNBAL. GND AM
REGULATOR POWER SUPPLY
IF AMP
FILTER
FM DET
LEVEL DET
MUTING
COMPOSITE AMP
MPX DEMODULATOR
PLL
fX1/2
PHASE COMPA-RATOR
STEREO LEVEL DETECTOR
38kHz
D8,13 2-1K261
Q9 2SC461
Q10 2SA726S
AM FRONT-END
Q11 2SC461
AM IF AMP
D12 MZ-081
VR5: VCO ADJ ACP-079
Q30 2SA733A
Q29 2SD880
REGULATOR
D7,9~11,14~16 1S2473
SIGNAL METER AAW-128
LED Ass'y GWX-495
D18 (STEREO)
D17,18 AEL-324
D17 (TAPE)
D1~4 GP-20D
PL2 8V300mA METER LAMP AEL-119
PL1 8V 100mA PILOT LAMP AEL-140
T1 ATT-687
S4: POWER ASG-511
AC POWER CORD ADG-023
AC 120V 60Hz
SWITCHED 200W MAX.
UNSWITCHED 200W MAX.
FU1: AEK-103
FU2,3: AEK-100
Q12 NJM4558DX
EQ AMP
D5 MZ-140
Q13,14 2SA798
Q15~18 2SC1775A
Q19,20 2SC945A
Q21,22 2SA720
Q23,24 2SC1318
Q25,26 2SB507P
Q27,28 2SD313P
Q13~28
POWER AMP
PHONO 2.5mV
AUX 150mV
TAPE PLAY 150mV
TAPE REC 150mV
S1: FUNCTION ASE-009
FM AM PHONO AUX
S3: TAPE MONITOR ASG-247
S2-1,2 MODE/FM MUTE ASG-242
S2-3,4 LOUDNESS ASG-242
VR1: VOLUME ACT-128
VR2: BALANCE ACT-023
VR3: TREBLE ACT-129
VR4: BASS ACT-129
D6 MZ-130
IDLE CURRENT ADJ
HEADPHONES Ass'y GWX-496
HEAD-PHONES
67mV/8Ω SP AT 1W.
SP OUT 11V/8Ω
TP4 TP3 TP1 TP2

1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ± 10%tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
V : Signal voltage at 15 W + 15 W 8Ω output (1kHz)
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

SWITCHES:

S1 : FUNCTION AM – FM – PHONO – AUX
S2-1,2 : MODE/FM MUTE ON/STEREO – OFF/MONO
S2-3,4 : LOUDNESS OFF – ON
S3 : TAPE MONITOR OFF – ON
S4 : POWER OFF – ON

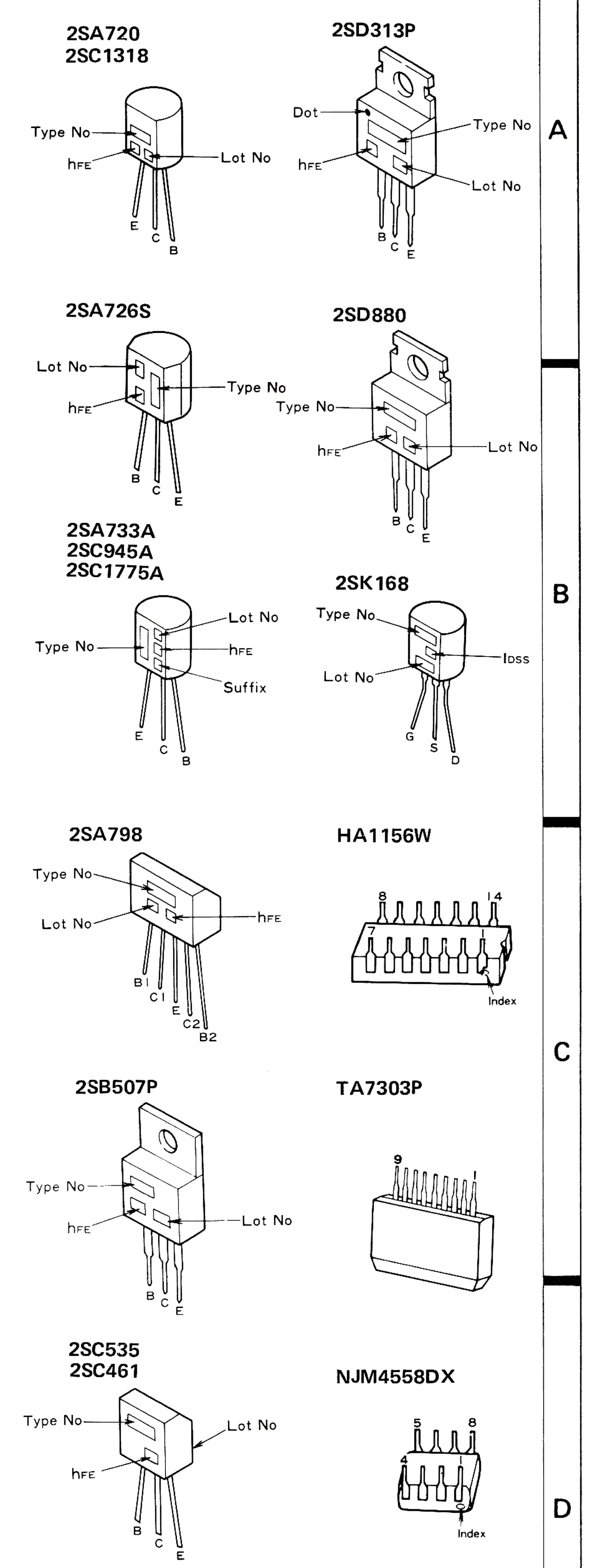
The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

10.2 P.C. BOARD CONNECTION DIAGRAM

TUNER/AF AMP Ass'y
GWM-163
PL1: 8V 300mA
PILOT LAMP
PL2 : 8V 300mA
METER LAMP
T1
BLU
BLU
RED
WHT
RED
BRN
WHT
C1
0.01
/AC 125
S4: POWER
AC 120V
60Hz
SWITCHED
200W MAX.
UNSWITCHED
200W MAX.
FU1 2A
FU2 4A
FU3 4A
R ch
L ch
PHONO
AUX
PLAY
REC
HEADPHONES Ass'y
GWX-496
HEADPHONES
SIGNAL
METER
LED Ass'y
GWX-495
(STEREO)
(TAPE)
AEL-324
FUNCTION
AM
FM
PHONO
AUX
TAPE MONITOR
LOUDNESS
MODE/FM MUTE
OFF/MONO
ON/STEREO
VOLUME
BALANCE
TREBLE
BASS
VR1 250K
VR2 1M
VR3 100K
VR4 100K
TP1
TP2
TP3
TP4
Q19,20 2SC945A
Q21,22 2SA720
Q23,24 2SC1318
Q25,26 2SB507P
Q27,28 2SD313P
D6 KZL130
Q2,4 2SC535
Q3,9,11 2SC461
Q7,8,10 2SA726S
Q12 NJM4558DX
Q29 2SD880
Q30 2SA733A
Q1 2SK168
TA7303P-C
HA1156W
D1~4 GP-20D
KZL140
Q13,14 2SA798
Q15,16 2SC1775A
D7,9,10,11,14,15,16 1S2473
D8,13 2-1K261
D12 MZ-081
1 2 3 4 5 6 7 8 9
A B C D

External Appearance of Transistors and ICs


2SA720
2SC1318
2SD313P
2SA726S
2SD880
2SA733A
2SC945A
2SC1775A
2SK168
2SA798
HA1156W
2SB507P
TA7303P
2SC535
2SC461
NJM4558DX
Type No
Lot No
hFE
Dot
Suffix
loss
Index
E C B
B C E
G S D
B1 C1 E C2 B2

10.3 PARTS LIST

NOTE:
When ordering resistors, first convert resistance values into code formas shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56×10^1 561 .... RD¼PS $\boxed{5}\boxed{6}\boxed{1}$ *J*
47kΩ 47×10^3 473 RD¼PS $\boxed{4}\boxed{7}\boxed{3}$ *J*
0.5Ω 0R5 .... RN2H $\boxed{0}\boxed{R}\boxed{5}$ *K*
1Ω 010 .... RSIP $\boxed{0}\boxed{1}\boxed{0}$ *K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562×10^1 5621.......... RN¼SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ *F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Part No.	Symbol & Description
GWM-163	Tuner/AF amplifier assembly
GWX-495	LED assembly
GWX-496	Headphones assembly

CAPACITOR

Part No.	Symbol	Description
⚠ ACG-017	C1	Capacitor

FUSES

Part No.	Symbol	Description
⚠ AEK-103	FU1	2A
⚠ AEK-100	FU2, FU3	4A

LAMPS

Part No.	Symbol	Description
AEL-140	PL1	Pilot lamp with wires
AEL-119	PL2	Lamp (wedge type)

SWITCH

Part No.	Symbol	Description
⚠ ASG-511	S5	Push switch (POWER)

OTHERS

Part No.	Symbol	Description
AAW-128		Signal meter
⚠ ATT-687	T1	Power transformer
⚠ AKP-039		AC socket
⚠ ADG-023		Power cord

Tuner/AF Amplifier Assembly (GWM-163)

SWITCHES

Part No.	Symbol	Description
ASE-009	S1	Slide rotary switch (FUNCTION)
ASG-247	S3	Push switch (TAPE)
ASG-242	S2	Push switch (MODE/FM MUTE, LOUDNESS)

TRANSFORMERS, FILTERS AND COILS

Part No.	Symbol	Description
ATE-039	T1	FM matching transformer
ATE-044	T2	FM detector transformer
ATB-622	T3	Bar antenna assembly
ATB-066	T4	AM OSC coil
ATF-053	F1, F2	FM ceramic filter
ATF-084	F3	AM ceramic filter
T24-028	L6	RF choke coil

CAPACITORS

Part No.	Symbol	Description
ACK-012	VC1	Variable capacitor
ACM-006	TC3	Ceramic trimmer
CCDUJ 090D 50	C1	
CCDSL 030C 50	C87, C88	
CCDPH 080D 50	C6	
CCDXL 080D 50	C53	
CCDSL 100D 50	C22	
CCDUJ 150J 50	C5	
CCDCH 150J 50	C11	
CCDRH 150J 50	C8	
CCDSL 150J 50	C3	
CCDCH 330J 50	C10	

Part No.	Symbol & Description
CCDSL 470J 50	C25, C49, C81–C84
CCDSL 680J 50	C97, C98
CCDSL 101J 50	C7
CCDSL 151J 50	C89, C90
CCDSL 221J 50	C63, C64, C79, C80
CKDYB 182K 50	C39, C40
CKDYB 222K 50	C35–C37
CKDYB 472K 50	C95, C96
CKDYA 822J 50	C69, C70
CKDYF 103Z 50	C2, C9, C12–C14, C18, C24, C48, C50, C55, C58
CKDYF 223Z 50	C75, C76
CKDYX 273M 25	C30, C34
CKDYF 473Z 50	C15, C17, C20, C28, C56, C59, C113, C114
CCDSL 561J 50	C37, C38
CCDSL 220K 500	C107, C108
CCDSL 101K 500	C109–C112
CQMA 242J 50	C67, C68
CQMA 183K 50	C91, C92
CQMA 273K 50	C99, C100
CQMA 473K 50	C117, C118
CQMA 104K 50	C93, C94
CQSH 331J 50	C51
CQSH 511J 50	C29
CEA R47M 50L	C42, C43, C60, C71, C72
CEA 010M 50L	C16, C23, C26, C52
CEA 2R2M 50L	C47
CEA 100M 50L	C21, C44, C46, C54
CEA 220M 25L	C19, C101, C102
CEA 330M 16L	C45
CEA 470M 10L	C65, C66
CEA 470M 25L	C120
CEA 101M 25L	C27, C105, C106
CEA 221M 16L	C41
CEA 221M 35L	C115, C116
CEA 331M 10L	C103, C104
CEA 331M 16L	C119
CEA 471M 35L	C124
CEANL R33M 50	C31
CEANL R47M 50	C33
CEANL 010M 50	C32, C73, C74
CEANL 2R2M 50	C77, C78
CEANL 3R3M 50	C61, C62
CEANL 100M 16	C85, C86
CGB R47K 500	C4
⚠ACH-217	C122, C123
⚠ACG-004	C125, C126
CEA 101M 35L	C121

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Part No.	Symbol & Description	
ACT-128	VR1	Variable resistor (VOLUME)
ACT-023	VR2	Variable resistor (BALANCE)
ACT-129	VR3, VR4	Variable resistor (BASS, TREBLE)
ACP-079	VR5	Semi-fixed resistor
ACN-118	R127, R128	Cement coated
ACN-029	R151	
RD¼PM □□□ J	R1–R26, R28–R43, R45–R122, R136–R140, R149, R150, R153, R154	
RN¼PQ □□□□ J	R27	
RD½PS □□□ J	R44, R131–R134, R141–R145	
⚠RD½PSF □□□ J	R125, R126, R146	
⚠RD¼PMF □□□ J	R123, R124, R129, R130, R135	

SEMICONDUCTORS

Part No.	Symbol & Description
2SK168	Q1
2SC535	Q2, Q4
2SC461	Q3, Q9, Q11
TA7303P-C	Q5
HA1156W-P	Q6
2SA726S	Q7, Q8, Q10
NJM4558DX	Q12
2SA798	Q13, Q14
2SC1775A	Q15–Q18
2SC945A	Q19, Q20
2SA720	Q21, Q22
2SC1318	Q23, Q24
2SB507P	Q25, Q26
2SD313P	Q27, Q28
2SD880 (2SD313)	Q29
2SA733A	Q30
⚠GP-20D	D1–D4
KZL-140	D5
KZL-130	D6
1S2473 (1S1555)	D7, D9–D11, D14–D16
2-1K261	D8, D13
MZ-081	D12

OTHERS

Part No.	Symbol & Description
AKA-016	Terminal (ANTENNA)
AKE-048	Terminal (SPEAKERS)
AKB-063	Terminal (INPUT, TAPE)
AEC-248	Insulator spacer
VBZ30P060FMC	Screw
BBT30P080FZK	Screw
PMZ30P040FMC	Screw
PMZ30P060FMC	Screw

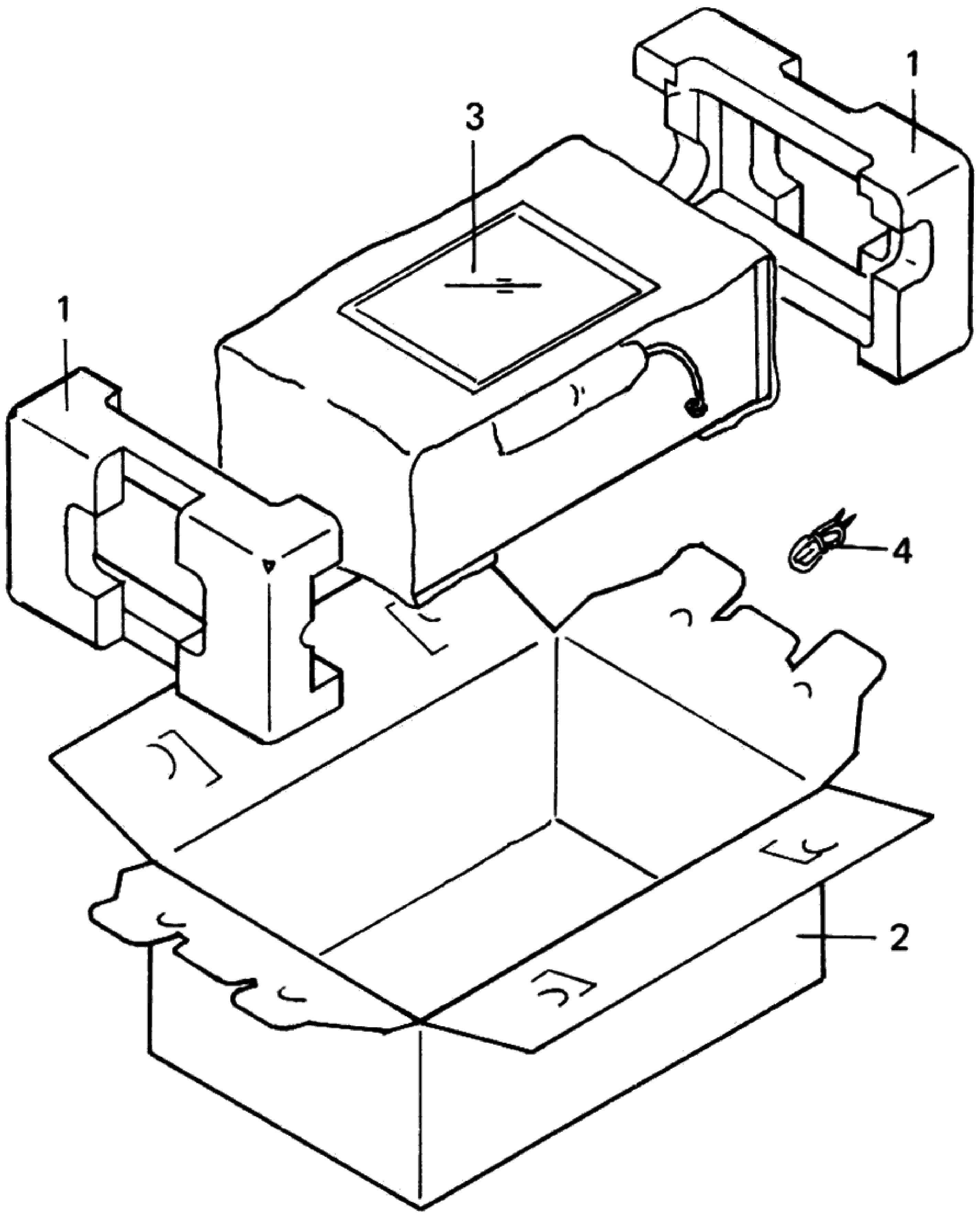
LED Assembly (GWX-495)

Part No.	Symbol & Description
AEL-324	D17, D18

Headphones Assembly (GWX-496)

Part No.	Symbol & Description
AKN-029	Headphones jack
RD½PS 331J	R147, R148

11. PACKING



Parts List

Key No.	Part No.	Description
1.	AHA-253	Side pad
2.	AHD-777	Packing case
3.	ARB-368	Operating instructions
4.	ADH-004	FM antenna

ADDITIONAL

Service Manual

PIONEER®

SX-3400

- The basic performance of the SX-3400/S type is the same as the SX-3400/KU type. This additional service manual is applicable to the S type, please refer to the KU type service manual (page 2 – page 24) with exception of this supplement.

1. SPECIFICATIONS

The specifications for S type is the same as the KU type except for following sections:

Miscellaneous
Power requirements ...... AC110V, 120V, 220V and 240V (switchable)
50/60Hz

2. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

P.C. BOARD ASSEMBLIES

Symbol	Description	Part No.		Remarks
		KU type	S type	
	Tuner/AF amplifier assembly	GWM-163	GWM-171	
	LED assembly	GWX-495	GWX-495	
	Headphones assembly	GWX-496	GWX-496	

OTHERS

Symbol	Description	Part No.		Remarks
		KU type	S type	
⚠ T1	Power transformer	ATT-687	ATT-689	
⚠ C1	Capacitor	ACG-017 (0.01/125)	ACG-001 (0.01/250)	
⚠ S5	Push switch	ASG-511	ASG-510	POWER
⚠ S2	Line voltage selector	....	AKX-063	Switchable 4 positions
PL1	Pilot lamp with wire	AEL-140	AEL-114	
⚠	Power cord	ADG-023	ADG-046	
⚠	Strain relief	AEC-358	AEC-337	
	Operating instructions	ARB-368	ARB-380	

3. SCHEMATIC DIAGRAM

TUNER / AF AMP Ass'y GWM-171
Q1 2SK168 Q2 2SC535 Q3 2SC461
FM FRONT-END
Q4 2SC535
FM IF AMP
Q5 TA7303P
FM IF AMP & DET
Q6 HA1156W-P
FM MPX
Q7,8 2SA726S
AF AMP
REGULATOR POWER SUPPLY
IF AMP
FILTER
FM DET
LEVEL DET
MUTING
COMPOSITE AMP
MPX DEMODULATOR
PLL
f×1/2
PHASE COMPARATOR
STEREO LEVEL DETECTOR
38kHz
FM 300Ω BAL. 75Ω UNBAL. GND AM
D8,13 2-1K261
Q9 2SC461
Q10 2SA726S
AM FRONT-END
Q11 2SC461
AM IF AMP
D12 MZ-081
VR5 : VCO ADJ ACP-079
Q30 2SA733A
Q29 2SD880
REGULATOR
D7,9~11,14~16 1S2473
SIGNAL METER AAW-128
LED Ass'y GWX-495
D18 (STEREO)
D17,18 AEL-324
D17 (TAPE)
D1~4 GP-20D
PL2 8V 300mA METER LAMP AEL-119
PL1 8V 100mA PILOT LAMP AEL-114
T1 ATT-689
S6: LINE VOLTAGE SELECTOR AKX-063
240V 120V 220V 110V
S5: POWER ASG-510
AC POWER CORD ADG-046
AC110,120V 220,240V 50/60Hz
SWITCHED 200W MAX.
UNSWITCHED 200W MAX.
FU1 : AEK-103
FU2,3 : AEK-100
Q12 NJM4558DX
EQ AMP
PHONO 2.5mV
AUX 150mV
TAPE PLAY 150mV
TAPE REC 150mV
S1: FUNCTION ASE-009
S3: TAPE MONITOR ASG-247
S2-1,2 MODE/FM MUTE ASG-242
S2-3,4 LOUDNESS ASG-242
VR1 : VOLUME ACT-128
VR2 : BALANCE ACT-023
VR3 : TREBLE ACT-129
VR4 : BASS ACT-129
Q13,14 2SA798
Q15~18 2SC1775A
Q19,20 2SC945A
Q21,22 2SA720
Q23,24 2SC1318
D5 MZ-140
D6 MZ-130
Q25,26 2SB507P
Q27,28 2SD313P
Q13~28 POWER AMP
IDLE CURRENT ADJ
HEADPHONES Ass'y GWX-496
SP OUT 11V/8Ω
67mV/8Ω SP AT 1W.
TP4 TP3 TP1 TP2
1 2 3 4 5 6
A B C D

1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ± 10%tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
V : Signal voltage at 15 W + 15 W 8Ω output (1kHz)
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

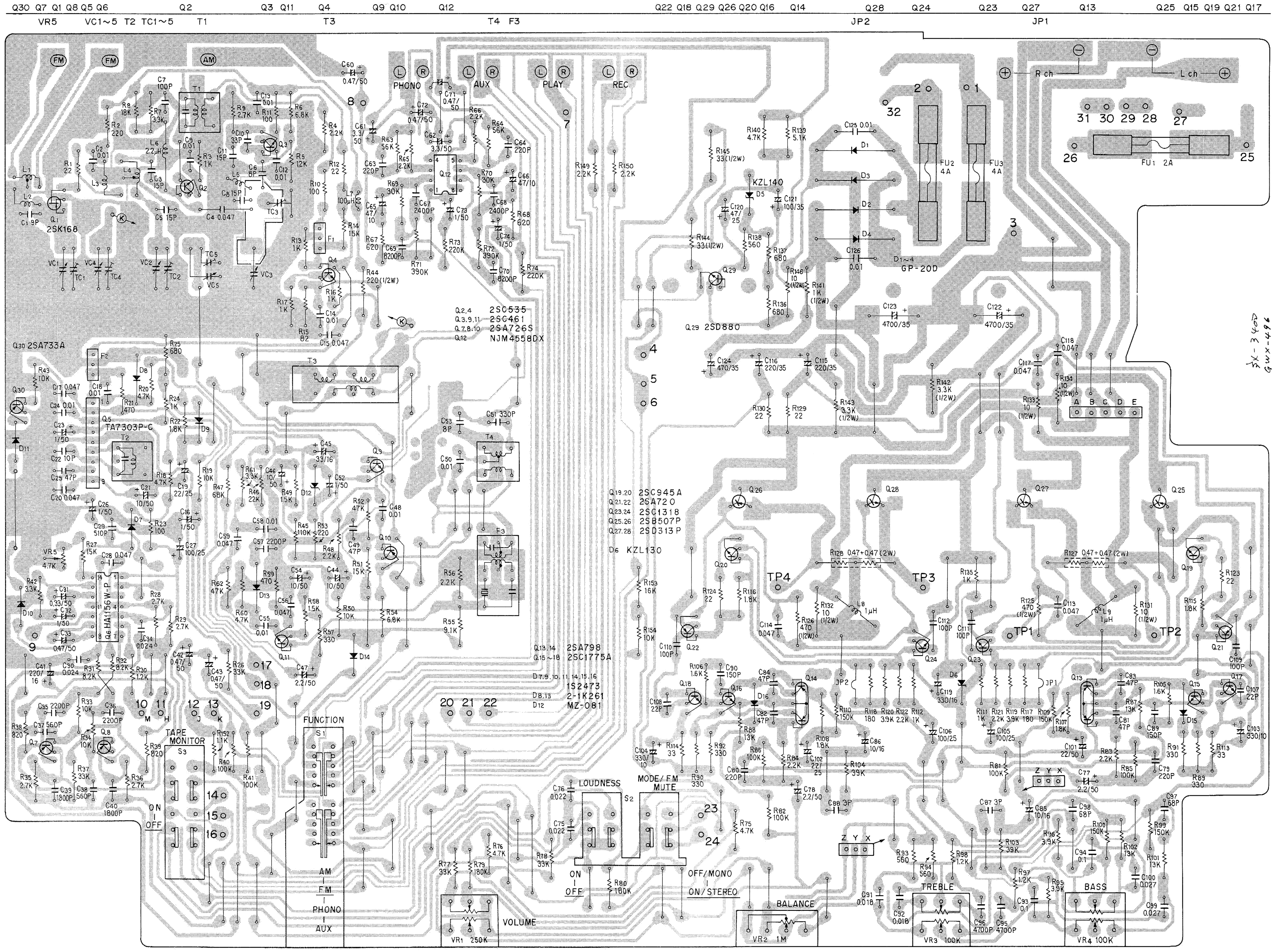
4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

SWITCHES:
S1 : FUNCTION AM – FM – PHONO – AUX
S2-1,2 : MODE / FM MUTE ON/STEREO – OFF/MONO
S2-3,4 : LOUDNESS OFF – ON
S3 : TAPE MONITOR OFF – ON
S4 : POWER OFF – ON
S5 : LINE VOLTAGE SELECTOR 110V – 120V – 220V – 240V
The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4 P.C. BOARD DIAGRAM

Tuner/AF Amplifier Assembly (GWM-171)


Q30 Q7 Q1 Q8 Q5 Q6 Q2 Q3 Q11 Q4 Q9 Q10 Q12 Q22 Q18 Q29 Q26 Q20 Q16 Q14 Q28 Q24 Q23 Q27 Q13 Q25 Q15 Q19 Q21 Q17
VR5 VC1~5 T2 TC1~5 T1 T3 T4 F3 JP2 JP1
FM
FM
AM
PHONO
AUX
PLAY
REC
R ch
L ch
FU1 2A
FU2 4A
FU3 4A
D1~4 GP-20D
KZL140
Q1 2SK168
Q30 2SA733A
Q5 TA7303P-G
Q6 HA1156W-P
Q2,4 2SC535
Q3,9,11 2SC461
Q7,8,10 2SA726S
Q12 NJM4558DX
Q29 2SD880
Q19,20 2SC945A
Q21,22 2SA720
Q23,24 2SC1318
Q25,26 2SB507P
Q27,28 2SD313P
D6 KZL130
Q13,14 2SA798
Q15~18 2SC1775A
D7,9,10,11,14,15,16 1S2473
D8,13 2-1K261
D12 MZ-081
TP1
TP2
TP3
TP4
TAPE MONITOR
S3
ON
OFF
FUNCTION
S1
AM
FM
PHONO
AUX
LOUDNESS
S2
ON
OFF
MODE/FM MUTE
OFF/MONO
ON/STEREO
VOLUME
VR1 250K
BALANCE
VR2 1M
TREBLE
VR3 100K
BASS
VR4 100K
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
SX-3400 GWX-496

5. PARTS LIST

Tuner/AF Amplifier Assembly (GWM-171)

SWITCHES

Part No.	Symbol & Description	
ASE-009	S1	Slide rotary switch (FUNCTION)
ASG-247	S3	Push switch (TAPE)
ASG-242	S2	Push switch (MODE/FM MUTE, LOUDNESS)

TRANSFORMERS, FILTERS AND COILS

Part No.	Symbol & Description	
ATE-039	T1	FM matching transformer
ATE-044	T2	FM detector transformer
ATB-622	T3	Bar antenna assembly
ATB-066	T4	AM OSC coil
ATF-053	F1, F2	FM ceramic filter
ATF-084	F3	AM ceramic filter
T24-028	L6	RF choke coil

CAPACITORS

Part No.	Symbol & Description	
ACK-012	VC1	Variable capacitor
ACM-006	TC3	Ceramic trimmer
CCDUJ 090D	C1	
CCDSL 030C 50	C87, C88	
CCDPH 080D 50	C6	
CCDXL 080D 50	C53	
CCDSL 100D 50	C22	
CCDUJ 150J 50	C5	
CCDCH 150J 50	C11	
CCDRH 150J 50	C8	
CCDSL 150J 50	C3	
CCDCH 330J 50	C10	
CCDSL 470J 50	C25, C49, C81–C84	
CCDSL 680J 50	C97, C98	
CCDSL 101J 50	C7	
CCDSL 151J 50	C89, C90	
CCDSL 221J 50	C63, C64, C79, C80	
CKDYB 182K 50	C39, C40	
CKDYB 222K 50	C35–C37	
CKDYB 472K 50	C95, C96	
CKDYA 822J 50	C69, C70	
CKDYF 103Z 50	C2, C9, C12–C14, C18, C24, C48, C50, C55, C58	
CKDYF 223Z 50	C75, C76	
CQMA 243K 50	C30, C34	
CKDYF 473Z 50	C15, C17, C20, C28, C56, C59, C113, C114	
CCDSL 561J 50	C37, C38	
CCDSL 220K 500	C107, C108	
CCDSL 101K 500	C109–C112	
CQMA 242J 50	C67, C68	
CQMA 183K 50	C91, C92	
CQMA 273K 50	C99, C100	
CQMA 473K 50	C117, C118	
CQMA 104K 50	C93, C94	
CQSH 331J 50	C51	
CQSH 511J 50	C29	
CEA R47M 50L	C42, C43, C60, C71, C72	
CEA 010M 50L	C16, C23, C26, C52	
CEA 2R2M 50L	C47	
CEA 100M 50L	C21, C44, C46, C54	
CEA 220M 25L	C19, C101, C102	
CEA 330M 16L	C45	
CEA 470M 10L	C65, C66	
CEA 470M 25L	C120	
CEA 101M 25L	C27, C105, C106	
CEA 221M 16L	C41	
CEA 221M 35L	C115, C116	
CEA 331M 10L	C103, C104	
CEA 331M 16L	C119	
CEA 471M 35L	C124	
CEANL R33M 50	C31	
CEANL R47M 50	C33	
CEANL 010M 50	C32, C73, C74	
CEANL 2R2M 50	C77, C78	
CEANL 3R3M 50	C61, C62	
CEANL 100M 16	C85, C86	
CGB R47K 500	C4	
⚠ ACH-217	C122, C123	
⚠ ACG-004	C125, C126	
CEA 101M 35L	C121	

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
ACT-128	VR1	Variable resistor (VOLUME)
ACT-023	VR2	Variable resistor (BALANCE)
ACT-129	VR3, VR4	Variable resistor (BASS, TREBLE)
ACP-079	VR5	Semi-fixed resistor
ACN-118	R127, R128	Cement coated
RD¼PM □□□ J	R1–R26, R28–R43, R45–R122, R136, R140, R153, R154	
RN¼PQ □□□□ J	R27	
RD½PS □□□ J	R44, R131–R134, R141–R145	
⚠ RD½PSF □□□ J	R125, R126, R146	
⚠ RD¼PMF □□□ J	R123, R124, R129, R130, R135	

SEMICONDUCTORS

Part No.	Symbol & Description
2SK168	Q1
2SC535	Q2, Q4
2SC461	Q3, Q9, Q11
TA7303P-C	Q5
HA1156W-P	Q6
2SA726S	Q7, Q8, Q10
NJM4558DX	Q12
2SA798	Q13, Q14
2SC1775A	Q15–Q18
2SC945A	Q19, Q20
2SA720	Q21, Q22
2SC1318	Q23, Q24
2SB507P	Q25, Q26
2SD313P	Q27, Q28
2SD880	Q29
(2SD313)	
2SA733A	Q30
⚠ GP-20D	D1–D4
KZL140	D5
KZL130	D6
1S2473	D7, D9–D11, D14–D16
(1S1555)	
2-1K261	D8, D13
MZ-081	D12

OTHERS

Part No.	Symbol & Description
AKA-016	Terminal (ANTENNA)
AKE-048	Terminal (SPEAKERS)
AKB-063	Terminal (INPUT, TAPE)
AEC-248	Insulator spacer
VBZ30P060FMC	Screw
BBT30P080FZK	Screw
PMZ30P040FMC	Screw
PMZ30P060FMC	Screw

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
U.S. PIONEER ELECTRONICS CORPORATION 85 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Luithagen-Haven 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

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